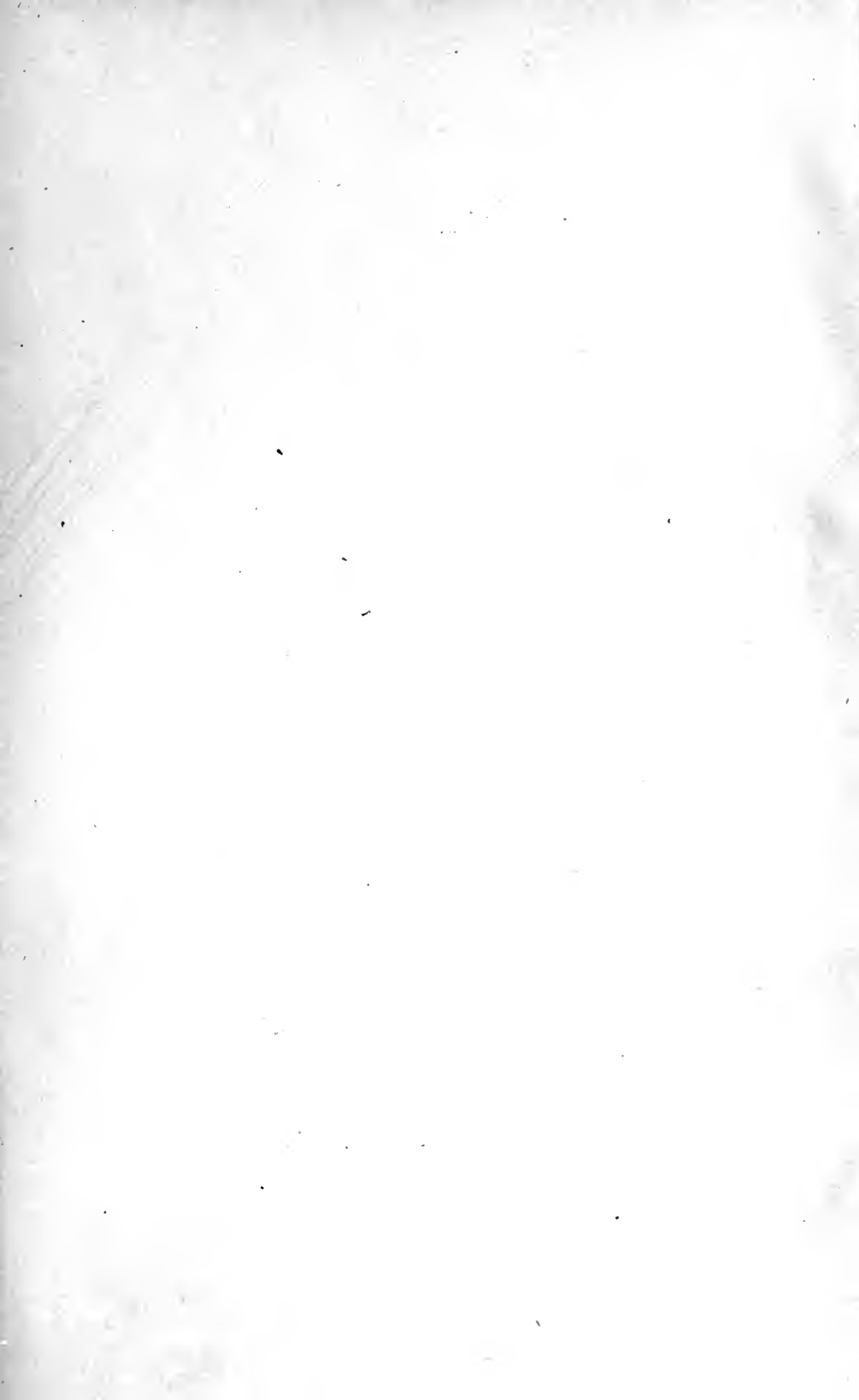


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16

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V. 14

CONTENTS

	PAGE
ARCHAEOLOGICAL INSTITUTE OF AMERICA:	
A Group of Related Structures at Uxmal, Mexico (Plates I-II).	
— SYLVANUS GRISWOLD MORLEY	1
The Correlation of Maya and Christian Chronology.	
— SYLVANUS GRISWOLD MORLEY	193
Note on the "Mourning Athena" Relief. — G. M. HIRST	324
Two Frescoes from Boscoreale. — OLIVER S. TONKS	327
Notes on Justus van Ghent (Plates VII-VIII).	
— MORTON H. BERNATH	331
Explorations in Southeastern Utah in 1908. — A. V. KIDDER	337
First Preliminary Report on the American Excavations at Sardes in	
Asia Minor. — HOWARD CROSBY BUTLER	401
Greek and Latin Inscriptions from Sardes. — DAVID M. ROBINSON	414
Experiments with Mycenaean Glaze. — OLIVER S. TONKS	417
A Panathenaic Amphora with the Archon's Name Asteius.	
— DAVID M. ROBINSON	422
Note on the Inscription <i>A.J.A.</i> XIV, 1910, p. 66.	
— CLERMONT-GANNEAU	426
Architecture on Attic Vases. — F. B. TARBELL	428
Recently Published Measurements of Pisa Cathedral.	
— WILLIAM H. GOODYEAR	434
Further Notes on Justus van Ghent. — MORTON H. BERNATH	450
AMERICAN SCHOOL OF CLASSICAL STUDIES AT ATHENS:	
The Fountain of Glauce at Corinth (Plate III).	
— GEORGE W. ELDERKIN	19
The Gables of the Propylaea at Athens (Plates IV-V).	
— WILLIAM BELL DINSMOOR	143
Notes on Greek Vase Paintings. — GEORGE W. ELDERKIN	185
Structural Notes on the Erechtheum. — B. H. HILL	291
The Roofed Gallery on the Walls of Athens (Plate VI).	
— L. D. CASKEY	298
The Choragic Monument of Nicias. — WILLIAM BELL DINSMOOR	459
AMERICAN SCHOOL OF CLASSICAL STUDIES IN ROME:	
Unpublished Inscriptions from Latium.	
— RALPH VAN DEMAN MAGOFFIN	51

	PAGE
The So-called Balustrades of Trajan. — JESSE BENEDICT CARTER .	310
Inscriptions from Privernum. — HENRY H. ARMSTRONG .	318
AMERICAN SCHOOL FOR ORIENTAL STUDY AND RESEARCH IN PAL- ESTINE :	
Greek Inscriptions from the Negeb.	
— NATHANIEL SCHMIDT and B. B. CHARLES	60
ARCHAEOLOGICAL NEWS AND DISCUSSIONS (July, 1909–June, 1910). — WILLIAM N. BATES, <i>Editor</i> :	
NOTES ON RECENT EXCAVATIONS AND DISCOVERIES ; OTHER NEWS	95, 361
<i>Oriental and Classical Archaeology</i> : — General and Miscellaneous, 95, 361; Egypt, 98, 363; Babylonia and Assyria, 100, 365; Syria and Palestine, 101, 366; Asia Minor, 101, 368; Greece, 103, 371; Italy, 113, 374; Spain, 380; France, 120, 381; Bel- gium, 121; Switzerland, 121, 384; Germany, 122, 385; Austria- Hungary, 124, 386; Russia, 125; Great Britain, 126, 386; Africa, 127, 387; United States, 128, 389.	
<i>Early Christian, Byzantine, Mediaeval, and Renaissance Art</i> : — Gen- eral and Miscellaneous, 129, 391; Italy, 129, 392; Spain and Portugal, 133, 395; France, 133, 395; Belgium, 134, 396; Ger- many, 134, 396; Russia, 135; Great Britain, 135, 397; Africa, 136, 398; United States, 137, 399.	
<i>American Archaeology</i> : — General and Miscellaneous, 138, 399.	
SUMMARIES OF ORIGINAL ARTICLES CHIEFLY IN CURRENT PERI- ODICALS 205, 485	
<i>Oriental and Classical Archaeology</i> : — General and Miscellaneous, 205, 485; Egypt, 207, 487; Babylonia, Assyria, and Persia, 209, 489; Syria and Palestine, 212, 493; Asia Minor, 216, 496; Greece, 218, 497 (Architecture, 497; Sculpture, 218, 498; Vases and Painting, 225, 506; Inscriptions, 226, 510; Coins, 229, 512; Gen- eral and Miscellaneous, 230, 513); Italy, 236, 516 (Architecture, 236, 516; Sculpture, 237, 517; Vases, 238; Painting, 517; In- scriptions, 239, 518; Coins, 240, 519; General and Miscellane- ous, 241, 521); Spain, 523; France, 244, 524; Belgium, 246, 524; Switzerland, 525; Germany, 246, 525; Austria-Hungary, 247, 526; Great Britain, 247, 526; Africa, 248, 526; United States, 249.	
<i>Early Christian, Byzantine, and Mediaeval Art</i> : — General and Miscellaneous, 249, 527; Italy, 252, 528; France, 253, 529; Ger- many, 253, 530; Great Britain, 254, 530.	
<i>Renaissance Art</i> : — General and Miscellaneous, 254, 531; Italy, 255, 531; Spain, 260, 535; France, 260, 535; Holland, 536; Ger- many, 260, 537; Austria, 539; Great Britain, 261, 539.	
<i>American Archaeology</i> : — General and Miscellaneous, 262, 539.	

CONTENTS

V

BIBLIOGRAPHY OF ARCHAEOLOGICAL BOOKS (1909).

PAGE

	— WILLIAM N. BATES, <i>Editor</i>	266
General and Miscellaneous		266
Egyptian Archaeology		267
Oriental Archaeology		268
Classical Archaeology		269
Greek and Roman		269
Greek, 270 (I, General and Miscellaneous, 270; II, Architecture, 273; III, Sculpture, 273; IV, Vases, 273; V, Inscriptions, 273; VI, Coins, 274).		
Roman, 274 (I, General and Miscellaneous, 274; II, Architecture, 276; III, Sculpture, 276; IV, Vases, 276; V, Inscriptions, 276; VI, Coins, 276).		
Christian Art		277
(I, General and Miscellaneous, 277; II, Early Christian, Byzantine, and Mediaeval, 282; III, Renaissance, 284.)		
Abbreviations used in the News, Discussions, and Bibliography		140

PROCEEDINGS OF THE ELEVENTH GENERAL MEETING OF THE ARCHAEOLOGICAL INSTITUTE OF AMERICA, BALTIMORE, De- cember 28, 29, 30, and 31, 1909

Preliminary Statement	71
---------------------------------	----

Abstracts of Papers read :—

Two Labors of Heracles on a Geometric Fibula.	
— WILLIAM N. BATES	71
The Standard of Artaxerxes at Cunaxa — CAMPBELL BONNER .	71
The Bronze Gates of Canosa. — THOMAS JEX PRESTON, JR. .	72
Structural Notes on the Erechtheum.	
— L. D. CASKEY and B. H. HILL	72
A New Marble in the Boston Museum of Fine Arts.	
— ARTHUR FAIRBANKS	72
Byzantine Architecture in France. — FRANCIS G. FITZPATRICK .	72
Babylonian Bookkeeping. — ALBERT T. CLAY	73
Hercules and Samson. — MARTIN L. ROUSE	74
The Roman Fortresses in the Provinces of Syria and Arabia.	
— HOWARD CROSBY BUTLER	75
The Harvard Excavations at Samaria. — DAVID G. LYON	76
Reconstruction of the Later Toga. — C. F. ROSS	77
An Unpublished Epigraphical Manuscript from Spain.	
— HARRY L. WILSON	78
Architecture on Attic Vases. — F. B. TARBELL	78
The Alban Villa of Domitian. — R. V. D. MAGOFFIN	79
A Byzantine Treasure from Egypt in the Possession of Charles L. Freer. — WALTER DENNISON	79
Discovery of the Lost Stūpa of Kanishka and Relics of Gautama Buddha. — D. BRAINERD SPOONER	81

	PAGE
Experiments with the Mycenaean Glaze.—OLIVER S. TONKS . . .	83
Structural Notes on the Propylaea.—W. B. DINSMOOR . . .	83
The Representation of Babylonian Gods in Art. —WILLIAM HAYES WARD	83
The Excavations of the School of American Archaeology in 1909. —EDGAR L. HEWETT	85
Identification of the Persons represented upon the Attic Grave Reliefs.—HAROLD R. HASTINGS	87
Recently Published Measurements relative to the Leaning Tower of Pisa and Pisa Cathedral.—WILLIAM H. GOODYEAR . . .	87
Notes on a Scyphus in Boston.—JAMES R. WHEELER . . .	87
Some Phoenician Sarcophagi.—LEWIS B. PATON	88
The Side Entrances to the Stage of the Roman Theatre. —CHARLES KNAPP	88
A Note on the Esoteric Doctrines of the Eleusinian Mysteries. —THOMAS SPENCER JEROME	89
Unpublished Inscriptions from Corinth.—KENDALL K. SMITH .	90
Some Problems in Mediaeval Vaulting.—CLARENCE WARD .	90
A Ceramic Note on Bacchylides XVI, 97. Maeander or Laby- rinth; a Comparative Study of the Red-figured Cylices. —GEORGE W. ELDERKIN	91
The Coinage of Bostra.—CHARLES R. MOREY	92
Papers read by Title	93
Notice of the Next General Meeting	93

PLATES

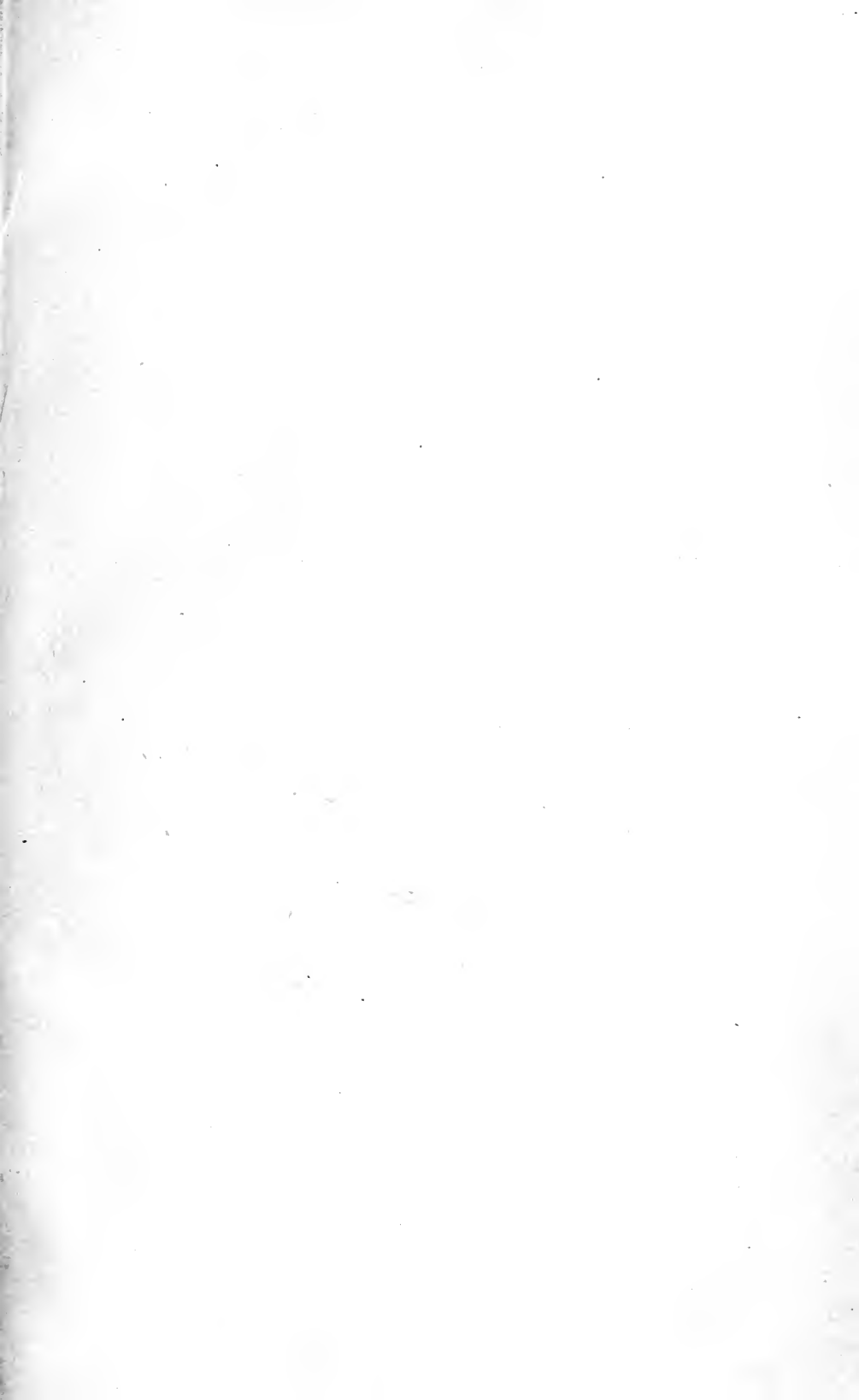
- I. a. Map of the Southwest Group, Uxmal. b. Cross-section of the Southwest Group, Uxmal.
- II. The House of the Pigeons (Structure *M*), Uxmal.
- III. The Fountain of Glauce—Ground Plan.
- IV. Propylaea: Reconstruction of the Superstructure of the East Hexa-style.
- V. Propylaea: Reconstruction of the Gable above the Gate Wall.
- VI. Reconstruction of the Gallery on the Walls of Athens. Isometric.
- VII. Epiphany at Trevi by Justus van Ghent.
- VIII. Tapestry in Boston, designed by Justus van Ghent.

ILLUSTRATIONS IN TEXT

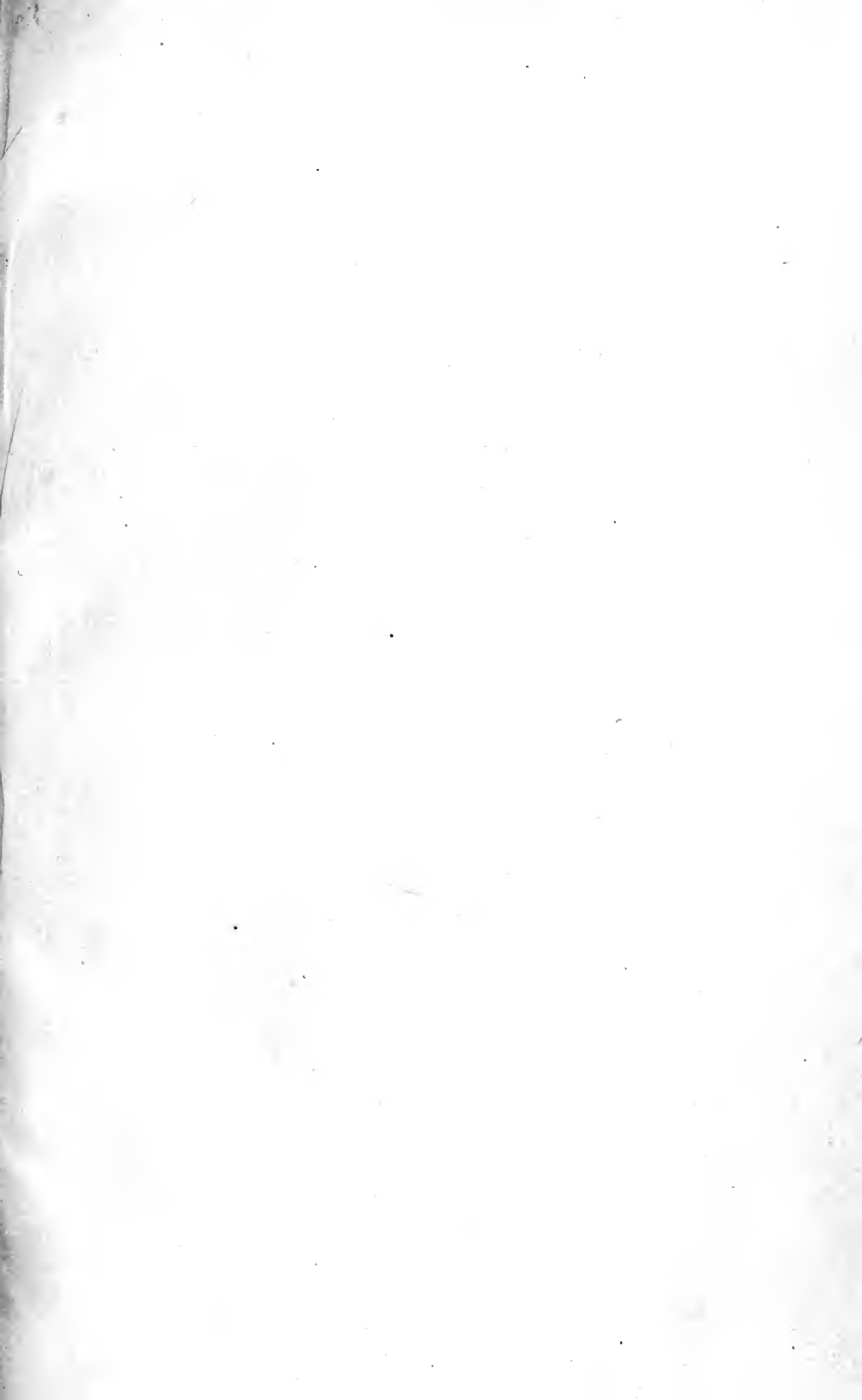
	PAGE
Façade of Range <i>T</i> (Uxmal)	12
The Blocked Arcade of Range <i>V</i>	15
The Fountain of Glauce — Front View	20
Glauce — Plan at Stylobate Level of Inner Colonnade	21
The Fountain of Glauce — East Face	23
Glauce from the Southwest	24
Glauce — Cross-section of Reservoir IV and Roman Wall	25
Glauce — Excess Escape Channel	27
Glauce — Upper End of IV, showing how the Walls have been quar- ried away	31
Glauce — The Architrave	32
Glauce — View from West across Reservoirs	33
Glauce — Cross-section through Portico	34
Glauce — Section through Draw Basins	35
Glauce — Details of Inner Colonnade	36
Glauce — View of Roof from the South	42
Enneacrunus	46
Fountain of Theagenes	48
Inscription from Beersheba	66
The Port of Delos	105
The Fountain Minoe	106
Sacrifice to Hecate: Bronze	107
Bronzes from Alise	120
Statue of an Old Market Woman	129
Signature of the Hausbuchmeister	129
Kneeling Virgin: Terra-cotta	131
Restoration of East Pediment, North Half (Propylaea)	148
Key of Central Slab of Tympanum, from Behind (Propylaea)	149
Angle Triglyph at North End of Gate Wall (Propylaea)	156
Sections of the Gable above the Gate Wall (Propylaea)	158
Top of Interior Cornice Block <i>P</i> (Propylaea)	160
Ends of North Entablature of East Portico (Propylaea)	162
North End of Tympanum Wall (Propylaea)	168
The Two Jointing Systems of the Tympanum Wall (Propylaea)	169
Top of Interior Cornice Block <i>N</i> (Propylaea)	171
Gable Angle backing the West Hexastyle (Propylaea)	173
Three Sima Fragments on the Acropolis (Propylaea)	177

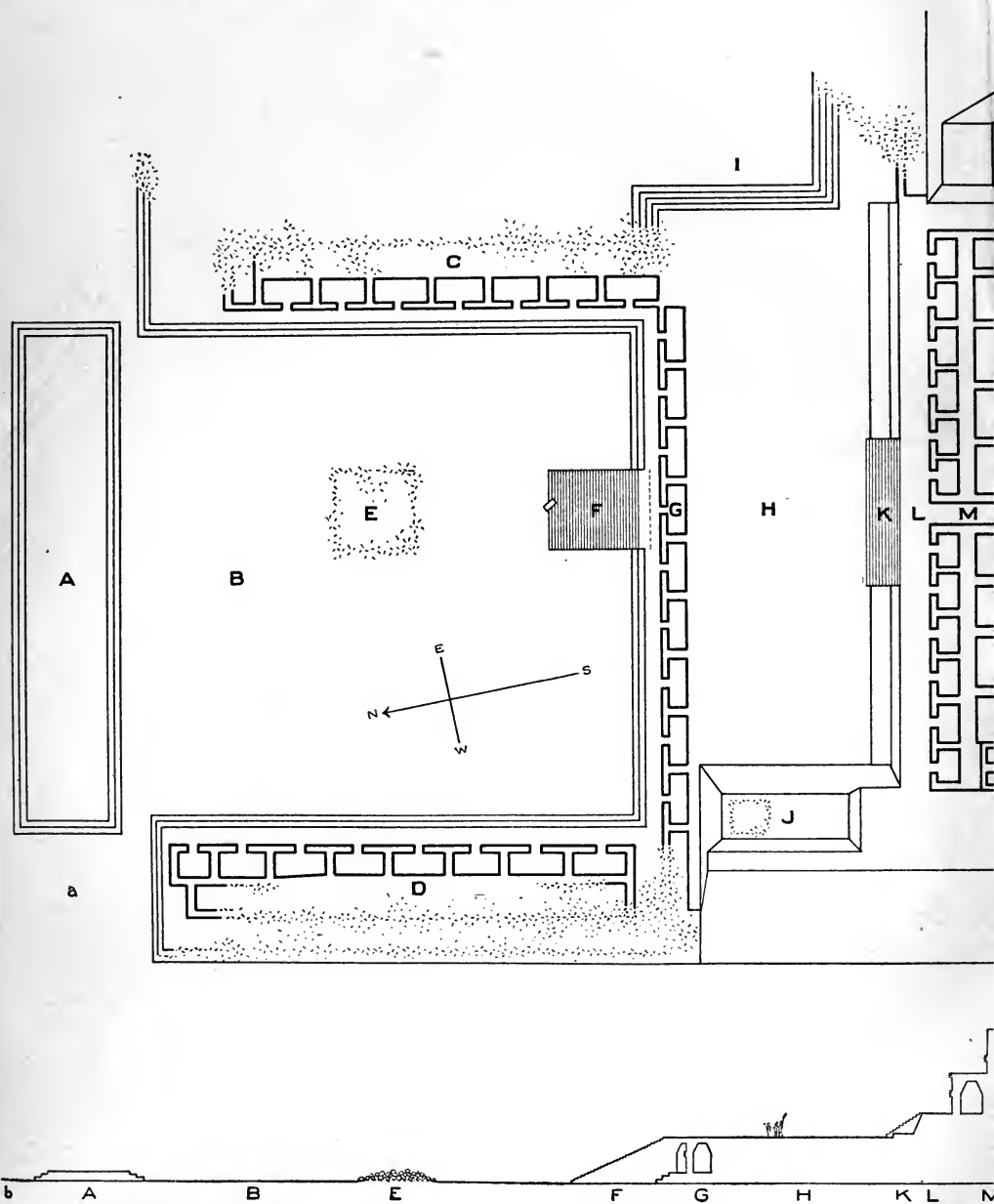
	PAGE
The Raking Cornice of the Southwest Wing (Propylaea)	178
Profile of the Raking Cornice (Propylaea)	179
Eaves Tile next to Angle Stone <i>G</i> (Propylaea)	182
Angle Geison <i>G</i> and Adjacent Stones (Propylaea)	183
Inner Part of Cylix in the British Museum	185
Fragment from Praesus	191
Athena (by Myron?) at Frankfort	220
Vase from Kakovatos	232
Vase from Kakovatos	233
Terra-cotta Vessel from Chieti	246
Marble Head in Cambridge	248
Annunciation in the Pantheon	257
Minerva by Cellini	261
Soffit of Epistyle at the West End (Erechtheum)	291
Ceiling of Western Chamber, Restored (Erechtheum)	295
Reconstruction of Southwest Corner, showing <i>Metopon</i> , Niche, and "Bent Beam" (Erechtheum)	297
Müller's Restoration of Gallery (on the Walls of Athens)	298
Choisy's Restoration of the Gallery	299
Plan of Gallery	302
Section showing Roof Construction (of Gallery)	304
Alternative Method of Construction (of Roof of Gallery)	306
Balustrade A: Cancellation of Arrears	311
Balustrade B: Institutio Alimentaria	312
Inscription from Privernum	318
Pompeian Painting at Princeton	327
Pompeian Painting at Princeton	329
Sketch Map of Western Tributaries of Montezuma Creek	338
Plan of Ruin on Alkali Ridge	346
Southeast End of North Wing (Alkali Ridge)	347
Plan of Excavated Portion of Ruin (Alkali Ridge)	349
Normal Kiva	351
Intramural Kiva	354
Intramural Kiva	355
Interior of Kiva	356
Interior of Kiva	357
Grave and Contents	358
Hittite Relief at Boghazkeui	369
Tablet from Locri	375
Tablet from Locri	375
Tablet from Locri	376
Tablet from Locri	376
Statuette of Primitive Cretan Style	384
Marble Bust from Mahdia	388
Relief in Boston, Front :	389
Relief in Boston, Right Wing	390

	PAGE
Relief in Boston, Left Wing	390
Farmyard Group, Roman	391
Group in Painted Wood at Cascia	393
View of Sardes from the West, showing Acropolis, Columns of Temple, Excavations, and Camp	402
The Excavations from the South. Marble Foundation Piers	407
View from the West. Steps and Inner Row of Bases	409
Part of the Wall of the Acropolis (Sardes)	412
Façade of the Pieve Nuova, at Santa Maria del Giudice, near Lucca (Twelfth Century Romanesque)	435
The Pieve Nuova, at Santa Maria del Giudice, near Lucca. View of North Wall, looking up the Hill	436
The Pieve Nuova, at Santa Maria del Giudice, near Lucca. Detail of the North Wall	437
The Pieve Nuova, at Santa Maria del Giudice, near Lucca. Survey in Elevation of the South Wall	438
The Pieve Nuova, at Santa Maria del Giudice, near Lucca. Survey in Elevation of the North Wall	438
Pisa, Cathedral. View of the Façade, the North Wall, and the West Side of the North Transept	440
Pisa, Cathedral. South Transept, West Side	441
Pisa, Cathedral. General View of the South Side	442
Pisa, Cathedral. The Choir in Parallel Perspective	443
Pietà, by Justus van Ghent. Altenburg; Lindenau Museum	451
Madonna, by Justus van Ghent. Berlin; Schloss	454
Madonna, by Justus van Ghent. Florence; Palazzo Corsini	455
Mater Dolorosa, by Justus van Ghent. Rome; Palazzo Corsini	457
Crucifixion, by Justus van Ghent. Philadelphia; Johnson Collection	458
The Choragic Monument of Nicias. Plan and Section of Epistyle	460
Anta Capital	461
Geisa of the Monument of Nicias	463
Plan of Existing Geisa of Pediment Floors	464
Block Moulding of Rear Geison. Full Size	465
Slabs from the Tympanum	468
Capital of Angle Column	470
Foundations of the Monument of Nicias	475
Plan of Foundations, Present State	477
Monument of Nicias; West Façade, Restored	479
Monument of Nicias and Stoa of Eumenes, Restored	481
Votive Relief from Phalerum	501
Marble Head from Chios	502
Marble Statue from Antium	504
Vase with Latin Inscription	508
Picture by Francesco Melzi	533

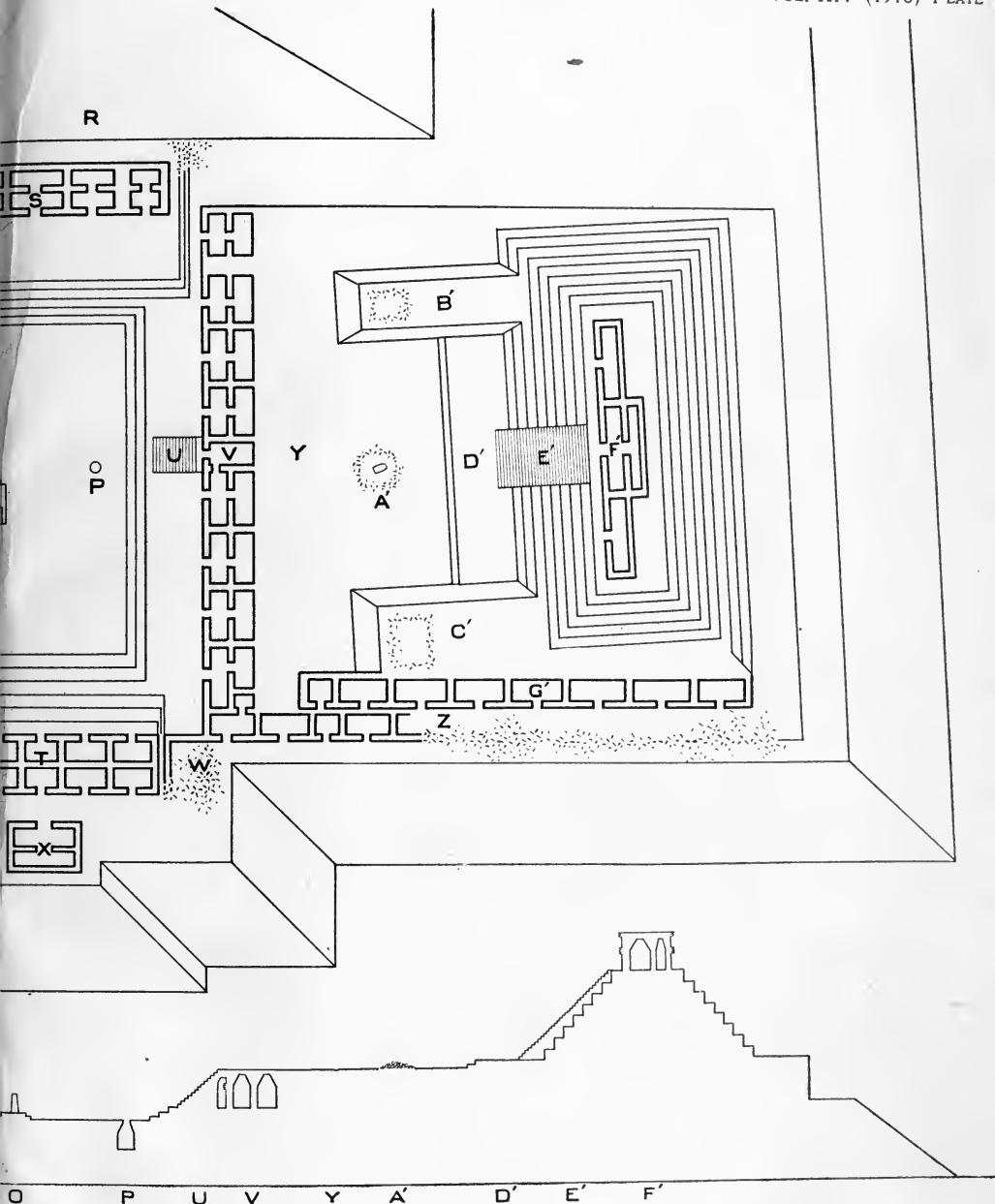




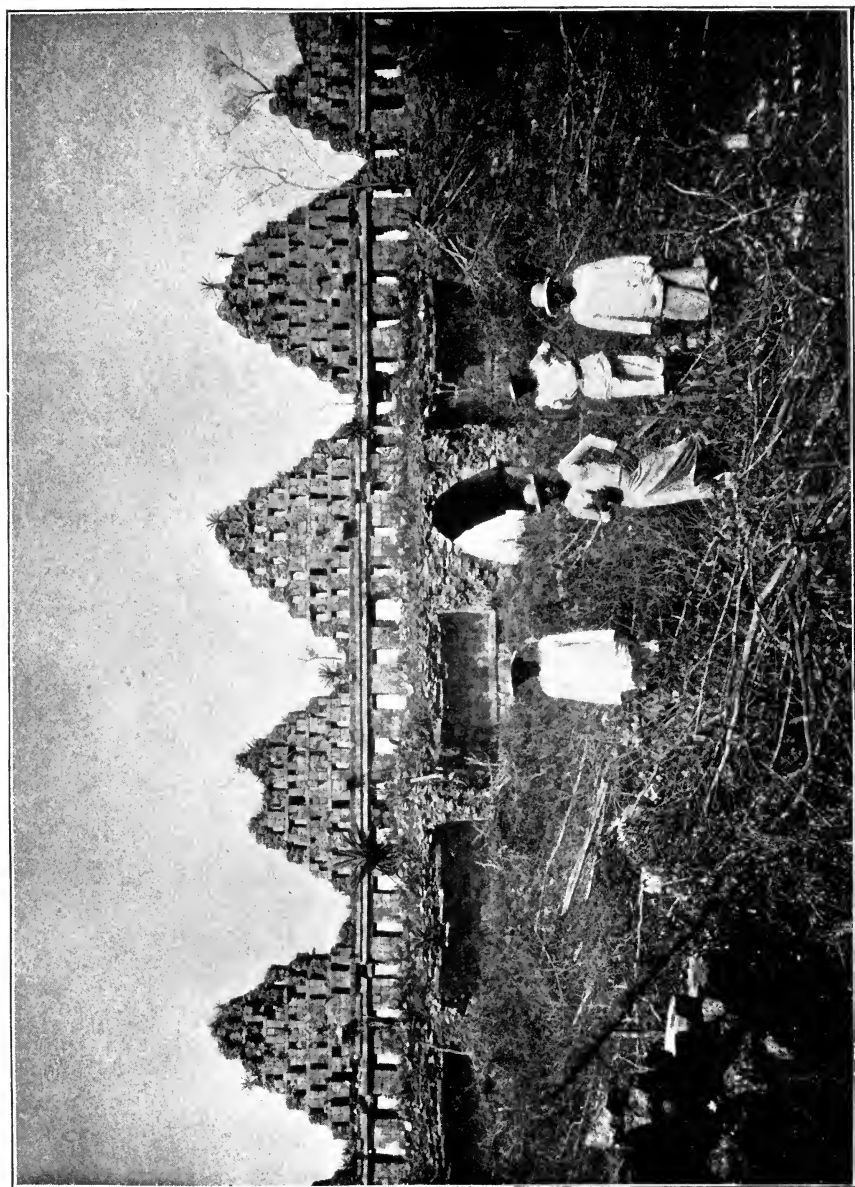




a. MAP OF THE SOUTHWEST GROUP, UXMAL.



S-SECTION OF THE SOUTHWEST GROUP, UXMAL



THE HOUSE OF THE PIGEONS (STRUCTURE *M*), UXMAL



A GROUP OF RELATED STRUCTURES AT UXMAL,
MEXICO

[PLATES I-II]

THE ruins of Uxmal in the state of Yucatan, Mexico, have long been known to the scientific world in a general way, but excepting the heart of the site, which was somewhat roughly mapped by Stephens and later by Holmes, the actual extent of this important group is as unknown to-day as at the time of the Spanish conquest. Indeed, to survey and map the entire site, which is one of the most extensive in the whole region covered by the Maya culture, and give to it a detailed study, is rather the work of large scientific institutions, operating for a term of years, than of the individual with but a single field season at his disposal.

The scope of the present paper, therefore, is by no means comprehensive. The object has been to describe as fully as possible without excavation a single group of buildings, which, by the arrangement of its several parts, seems to constitute a very definite unit of assemblage, and, in the case of the group chosen, probably a religious unit as well.

The group herewith presented lies southwest of The House of the Governor and west of The Great Pyramid (*R*, PLATE I *a*). Such, however, is the luxuriance of the vegetation here, that only its two highest members, The South Pyramid and The House of the Pigeons, are visible from the other eminences of the city, all else, terraces, courts, and quadrangles, being hidden by a riot of vines, creepers, and dense tropical foliage. On every side the bush has effectually reclaimed its own. This group is composed of two quadrangles and a terminal pyramid (*B*, *N*, and *F'*, respectively, PLATE I *a* and *b*), and two platforms (*H* and *Y*, same plate), which separate the above

from each other. These five divisions, and the units into which each may be resolved, conform very closely to the same long axis, all lying approximately in the same north and south line.

The chief entrance and direction of approach is from the north. This fact is established in several ways. First, the substructures, which support the various buildings of the group, increase in height above the level of the ground from north to south. (See the partly restored cross-section in PLATE I *b*.¹) This progressive increase in height from north to south necessitated the placing of all four of the stairways at the south sides of the respective courts or terraces from which they rise (PLATE I *a*), which indicates that approach is from the north only.

Again, the high-stepped pyramid at the southern end of the group has no stairway on its southern slope. This precludes the possibility of entrance from the south side, and when taken together with the fact that the long axis of the group is north and south and that all of its members lie north of this terminal South Pyramid, it is clear that entrance can be from the north only.

Approaching from this direction, a long low promenade (*A*, PLATE I *a* and *b*) is crossed, which is the north member of the first or North Quadrangle *B*. This promenade is 225 feet long east and west, 45 feet wide, and rises 3 feet above the level of the ground. It was mounted by three steps, originally running around all four sides, but now only to be traced in a few places. At its western end it does not appear to have ever joined the terrace supporting the West Range of this quadrangle (*D*, PLATE I *a*), and probably its eastern end also stands clear of the terrace supporting the East Range (*C*, PLATE I *a*), though the relationship in this corner is less clear. The top is quite level, and although much fallen masonry is scattered about, there is hardly enough to warrant the assumption that stone structures had ever stood here. This low promenade without anything to interrupt the vision is a fitting entrance to the group. Standing upon it and looking south, the different buildings of the succeeding quadrangles can be

¹ The cross-section here presented was so taken as to pass through all four of the stairways.

seen rising one above the other until the lofty temple surmounting the South Pyramid catches the eye and holds it, the last and highest member of the assemblage, and, we may well believe from the importance of its position, the sanctuary. The formality of the long approach, the increasing elevation of succeeding members, and, finally, the extreme prominence of its location would seem to indicate that in the case of this temple we are dealing with a place of no less importance than the supreme sanctuary of the group.

Descending the three steps of the north platform, the court of the North Quadrangle (*B*, PLATE I *a* and *b*) is reached. This is an area 230 feet square. Somewhat east of its centre and due north of the first stairway (*F*, PLATE I *a* and *b*) is a shapeless mound of fallen masonry *E*, which probably was one of the low rectangular platforms found in the centres of all courts throughout the city. Each one of these originally seems to have supported a monolith usually from 2 to 3 feet in diameter and 5 to 7 feet high, called by Stephens the "picote."¹ The picote of this particular platform is missing, though a fragment of its base was found 50 feet south at the foot of the first stairway (*F*, PLATE I *a* and *b*). It is $2\frac{1}{2}$ feet in diameter and has two intertwined serpents sculptured around its base. The use of these cylindrical monoliths is unknown. Stephens, *Incidents of Travel in Yucatan*, vol. I, p. 182, says that the Indians called the large stone shaft, or column, on the terrace in front of The House of the Governor "the picote," or whipping-post, though no reasons for this identification are advanced. The association of these monoliths with the custom of flagellation in the absence of more definite traditional proof seems hazardous, particularly since there is to be found in the Usamacinta region, the habitat of a Maya culture older than that of Yucatan, a logical prototype for them. The writer refers to the stone *stelae*, or sculptured monoliths, which occur in front of buildings and pyramids throughout the Usamacinta area, and which reach their highest development in the elabo-

¹ The picote in front of The House of the Governor is considerably larger than this, reaching a height of 8 feet above the ground and a diameter of 5 feet at its base. Such dimensions, however, are unusual, and indeed, so far as known, occur nowhere else in the city.

rately sculptured monuments of Copan and Quirigua. These monoliths at Uxmal may well be a degenerate expression of the same idea which gave rise to the *stelae* of the older area. Such an identification, at least, seems more reasonable than the association of these monoliths with the custom of flagellation in the complete absence of supporting traditional evidence. Every court as mentioned above seems to have been provided with one. Sometimes they are completely covered with elaborately sculptured serpents or hieroglyphs, and again others are perfectly plain.

The three ranges of rooms surrounding the north court on its east, south, and west sides (*C*, *G*, and *D*, respectively, PLATE I *a*) do not rise directly from the level of the ground, but stand upon a low terrace some 3 feet high, reached by as many steps. These ranges, as well as all the other structures of the group, are of one architectural type: the Maya arch, which was employed not only here, but also throughout the whole region covered by the Maya culture to the exclusion of every other method of construction. Indeed, it would almost seem that this gifted race knew of no other than that of the false arch which they applied universally. Maya structures are built of rubble encased with a veneer of dressed stone, which was applied before the rubble hearting had set. This veneer or surface facing is in reality nothing more than a great mosaic, serving no structural function. In many buildings large sections of it have fallen off without disturbing in the least the solidarity of the rubble hearting. Rooms are roofed with steep false arches let into this rubble hearting (*G*, *M*, *V*, and *F'*, PLATE I *b*). These are faced like the exterior and interior walls with a veneer of dressed stone. As no provisions for superimposed weight other than human, a negligible quantity at its maximum, had to be made, the cohesive strength of the rubble alone was more than sufficient to support this false arch, though the width spanned is necessarily limited, rarely exceeding more than 10 or 12 feet.

Returning to the North Quadrangle again, the East and West Ranges *C* and *D* are found to be in an advanced state of ruin. Originally each was composed of two non-communicating series of rooms, one behind the other, in each case the series fronting

upon the court being better preserved than the outside series (*C* and *D*, PLATE I *a*).

The rooms of these interior series, where it was possible to measure them, vary from 14 to 22 feet in length and from 8 to 10 feet in width. All are uniformly 18 feet high. The middle walls of these two ranges contain no openings, and consequently all rooms had to be entered through exterior doorways.

The southern end of the East Range *C* is built against the eastern end of the South Range *G*, the corner thus formed appearing quite clearly in spite of the widespread ruin here. It is probable that the southern end of the West Range *D* also was similarly attached to the western end of the South Range in former times, but débris is now piled so high in this corner of the court that it would be impossible to trace the ground-plan without extensive excavation.

The remaining side of the North Quadrangle (*G*, PLATE I *a* and *b*) is the most interesting. It is composed of a single series of nine rooms built against the artificial terrace in front of The House of the Pigeons (*H*, PLATE I *a* and *b*). Entrance could only be effected by doorways in the north wall, as the south wall was built against the solid rubble terrace *H*. All the rooms are badly demolished. The average length east and west is 21 feet. The width is $8\frac{1}{2}$ feet. Walls are 2 feet thick.

The façades of all three of these ranges, *C*, *D*, and *G*, have collapsed, and without excavation it is impossible to say whether their upper zones had been sculptured or not. Judging from the other members of the group which have retained their façades, all were probably quite plain, barring of course the ever-present triple-member cornice which appears on the vast majority of Maya façades, dividing them horizontally into two zones. The platform *H*, which extends over the rooms of the South Range *G*, is 18 feet higher than the court below.

It is reached by a stairway (*F*, PLATE I *a* and *b*) 33 feet wide, the steps of which probably had a tread of about 18 inches and a rise of 8 or 10 inches. This stairway has now completely collapsed, but there are ample proofs of its former existence on every side.

Unless measures had been taken to prevent, the building of

this stairway would have blocked the entrance of the room over which it passed (PLATE I *a* and *b*). That the ancient builders, however, foresaw and forestalled this contingency seems probable from the fact that they satisfactorily overcame the same difficulty not only in other cities of Yucatan, Chichen Itza and Kabah, but also in other buildings here at Uxmal. In the House of the Dwarf, for example, a half arch was built underneath the stairway, which ascends the western slope of that pyramid, having for one of its sides the exterior wall of the room or rooms that the stairway otherwise would have blocked. These rooms open directly into the passageway thus formed, which in turn leads to the outside. There seems to be a fragment of a similar construction (*i.e.* the half arch) (*U*, PLATE I *a* and *b*) still adhering to the South Range *V* of the South Quadrangle in front of the room over which the third stairway *U* passes. Doubtless the same thing was present under the first stairway *F*, though the half arch in this latter case has given way completely and wrecked the steps above. This satisfactorily accounts for the greater demolition of *F* and *U*, the first and third stairways, where these half arches were necessarily present, than of the second and fourth, *K* and *E*, which were much better preserved because of the absence of this element of weakness. These half arches below the first and third stairways have been restored in the cross-section (*F* and *U*, PLATE I *b*).

Passing up the first stairway and out of the Court of the North Quadrangle, the broad platform (*H*, PLATE I *a* and *b*) in front of The House of the Pigeons is reached. This is 270 feet wide east and west and 88 feet deep. It is devoid of any kind of structure except for a mound (*J*, PLATE I *a*) running across its western end. The summit of this mound is slightly higher than the terrace *L*, and originally had supported a building of some sort, only the ruins of which now remain. The eastern end of the platform terminates in a broad stairway leading to the area (*I*, PLATE I *a*) just north of the Great Pyramid *R* and the range of rooms at its northern base. The south side of this platform *H* is an almost vertical wall of faced masonry 9 feet high, which forms the north retaining wall of the terrace *L*. Three human figures drawn to scale have been

introduced in the cross-section (PLATE I *b*) upon this platform *H* to give an idea of relative size.

The second stairway *K*, which rises from the south side of platform *H* is 60 feet wide. It is composed of ten or twelve low, deep steps, and leads to the narrow terrace *L*, extending along the entire front of The House of the Pigeons. The structure thus fancifully designated is one of the most imposing in the city. Its name is derived from the curious form of the roof-comb,¹ which rises in nine triangular extensions, each pierced with many rectangular openings. In the accompanying illustration (PLATE II)² only the five middle ones appear. The resemblance of these extensions and their window-like apertures to dove-cotes suggested the name "House of the Pigeons," which Stephens first applied to this structure.

This building (*M*, PLATE I *a* and *b* and PLATE II) is 232 feet long east and west, 32 feet wide, and, including the roof-comb, 35 feet high. It is composed of two series of rooms, a northern and southern, interrupted by an arcade passing through the middle of the building, which appears in PLATE II, and a small annex at the southwest corner containing two rooms, the long axes of which are north and south like that of the arcade, or at right angles to those of the other rooms. This arcade is 32 feet long (the width of the building) north and south, 9½ feet wide, and 13½ feet high. It opens directly into the Court of the South Quadrangle (*N*, PLATE I *a* and *b*) and affords passageway from the North Quadrangle to all structures of the group south of it.

¹ The roof-comb is a common feature of Maya architecture, and occurs throughout the Usamacinta region, as well as in Yucatan. It consists of a wall sometimes 15 feet or more in height built upon the roof of a structure. Except that it is always parallel to the long axis of the building it surmounts, the position of the roof-comb varies. It may stand directly over the back, middle, or front of the building or at any intermediate point. This roof-crest, as it has been called by some, passes through an interesting development. In the earlier forms, as at Tikal, Guatemala, it consists of a solid wall, to support which masonry buttresses were built inside of the building directly beneath the superimposed weight. Later, as here at Uxmal in The House of the Pigeons, this solid wall was pierced with rectangular openings to lighten it, and it was placed directly over the middle wall of the building, so that the middle wall could be utilized for its support.

² Kindly lent by the Field Museum in Chicago.

The northern series of rooms was composed originally of six long chambers, three on each side of the arcade, ranging from 30 to 34 feet in length and uniformly $9\frac{1}{2}$ feet wide. Sometime after the completion of the building, however, each one of these was divided into two smaller rooms by the erection of a north and south partition across its middle. That this subdivision dates from a period later than the erection of the building would seem to be indicated by the fact that none of the later partitions mentioned penetrate the thick middle wall, but merely abut against it. There was no bonding of the courses of these partitions with those of the middle wall, and, moreover, they are of less thickness than the eastern and western walls of the six original rooms (*M*, PLATE I *a*). The twelve smaller rooms thus formed vary from 14 to 16 feet in length. The width remained unchanged. As no doorways pierce the middle wall separating the north and south series from each other, it is evident that entrance to northern rooms must have been gained by doorways in the north wall, and similarly, entrance to southern rooms through doorways in the south wall.

The southern series of rooms differs in its arrangement from the northern. East of the arcade it is divided into five rooms, and west of the arcade into four, the place of the fifth room on the western end being occupied by the southwest annex (*M*, PLATE I *a*). These nine rooms vary in length from 16 to 22 feet and are all of the same width as the rooms of the northern series, $9\frac{1}{2}$ feet. Judging from the joints the eastern and western walls make with the middle wall, all these rooms were built at the time of the erection of the building, and are not later subdivisions like the rooms of the northern series.

The small annex at the southwest corner introduces an element of irregularity in the ground plan of The House of the Pigeons, marring the symmetry of the building. It was thrown out to the south at right angles to the long axis so that its western façade is coincident with the western façade of the main structure (*M*, PLATE I *a*). That this annex stands upon a higher level, however, than the rest of the building is clear from the position of its medial cornice, which is 6 inches higher than the roof of the main structure. This position of the medial cornice above the roof of the main structure, when

its regular position is at least 5 feet below the level of the roof, indicates that the southwest annex stands at least 5 or 6 feet higher than the rest of the building. The southwest annex has two rooms, each 16 feet long north and south. The eastern, or back room, is $6\frac{1}{2}$ feet wide, and the western, or front room, 5 feet wide. The entrance, now destroyed, was in the west wall of the latter, a doorway in the east wall $4\frac{1}{2}$ feet wide giving access to the back room.

It was impossible to secure the height of a single room in this building because of the accumulation of débris on the floors. Probably they are of the same height as the arcade, $13\frac{1}{2}$ feet.

The extreme thickness of the middle wall of this structure (*M*, PLATE I *a* and *b*), $5\frac{1}{2}$ feet throughout its entire length, is doubtless due to the need for extra strength, which the ancient builders very cleverly foresaw would arise, when such a bulk of masonry as the roof-comb should be built along the centre of the roof. It is located directly above the centre of the middle wall. As it is but $2\frac{1}{2}$ feet thick, and the middle wall is $5\frac{1}{2}$ feet thick, the latter provides a margin of safety on each side of the roof-comb to take care of its downward thrust, which, in the case of such a massive construction, must be excessive. The function of the roof-comb was decorative, and in no sense structural. Originally it was the masonry framework to which an elaborate stucco relief was attached. In the course of time this has cracked and fallen away until now only a few patches remain. A fragment of an elaborate feather head-dress on the south side, in its breadth and delicacy of treatment, particularly in the handling of the drooping feathers, well indicates the magnitude of our loss in the destruction of this great relief. The entire roof-comb had once been brilliantly painted, and close examination still reveals traces of color in places sheltered from the rain.

Its nine triangular extensions, as may be seen in PLATE II, do not rise directly from the level of the roof, but surmount a triple-member cornice which itself is 5 feet above the roof top. It is symmetrically mounted with reference to the north and south axis bisecting the arcade. That is, the apex of the middle extension, the fifth from either end, is directly above the centre of the arcade. The remaining eight, four on each side, reach exactly to the east and west ends of the building.

In addition to the rectangular apertures, this roof-comb possesses another interesting characteristic. There project from its north and south faces, for 18 inches or more, a number of flat stones (PLATE II). Whether these formed the supports for stone statuettes or whether they were only the framework for elaborate and heavy pieces of stucco relief, it is now impossible to say. Probably the former hypothesis more correctly explains their use, since flat stones similarly projecting from façades at Chichen Itza and Labna still have stone figures resting upon them.

Owing to the collapse of the exterior walls of The House of the Pigeons (PLATE II), no façade has been preserved, but judging from a small section of the exterior wall of the south-west annex which is still standing, it probably had been quite plain, bearing no sculptural decoration other than the triple-member cornice. The striking feature of this building is, of course, its lofty roof-comb, and with a fine sense of discrimination the ancient builders confined their decorative designs exclusively to it.

This massive roof ornament extending along the entire length of the building must have given in its entirety an imposing and dignified character to this structure. Such an embellishment could not fail to have attracted the attention of every one crossing the North Quadrangle, and must have awakened in the inhabitants of this ancient city vivid impressions concerning very definite religious conceptions.

Passing through the arcade of The House of the Pigeons, we enter the Court of the South Quadrangle (*N*, PLATE I *a* and *b*), the North Range of which, *M*, has just been described. This plaza, surrounded by ranges of rooms on every side, is 214 feet wide east and west and 147 feet deep. The centre is occupied by the customary low rectangular platform (*O*, PLATE I *a* and *b*), which in this instance, fortunately, is sufficiently well preserved to give an idea of the character of this interesting class of remains. It consists of a low platform 16 feet long by 14 feet wide and 1 foot high, from the western end of which rises a smaller platform also a foot high but covering less than half the area of the lower one. Upon this higher step there was mounted originally a monolith of cylindrical form. This

has fallen and lies in two fragments upon the lower step. A hole in the upper step, however, clearly indicates its former position. It is $7\frac{1}{2}$ feet long, one foot and a half in diameter at its smaller (upper) end, and 2 feet in diameter at the base. The surface of this stone is too much weathered to show traces of carving if such were ever present.

Just south of this platform are two or three subterranean structures called "chultunes" (*P*, PLATE I *a* and *b*). Mr. E. H. Thompson, who examined the chultunes of Labna,¹ conjectures them to have been reservoirs to catch and hold water during the rainy season for use in the dry months. That these underground chambers were reservoirs for storing water seems likely from the fact that they occur in greatest abundance at those sites which are not provided with natural reservoirs. Thus, for example, they have been found in great numbers at Uxmal and Labna, but at Chichen Itza, which has two large natural water holes, none have been discovered. In the northwest corner of this court (*Q*, PLATE I *a*) there was originally a small building, which is now completely ruined.

The East and West Ranges of the South Quadrangle (*S* and *T* respectively, PLATE I *a*) rise from much higher terraces than the South Range *V*. The summits of both the former terraces are reached by six or seven low, deep steps running along their entire fronts, the three lowest of which only are continued across the south side of the court to form the terrace of the South Range *V*. The rises of these steps seem to have been from 10 to 12 inches high, and the treads from 4 to $4\frac{1}{2}$ feet deep.

The East Range *S* is more destroyed than any other building of this group. This is due, no doubt, to its location not 10 feet from the base of the Great Pyramid (*R*, PLATE I *a*), in which position it has had to withstand the tremendous battering of the disintegrating masonry rolling down from above. It seems to have been about 120 feet long north and south and 22 feet wide. There were two series of rooms one behind the other, each containing five rooms, a total of ten for the building. The doorways to all of them were in their west

¹ *Memoirs Peabody Museum of American Archaeology and Ethnology*, Harvard University, vol. I, No. 3.

walls. The two southern rooms probably date from a later period than the rest of the building. The presence of a triple-member cornice, an exterior decorative element only, running across their northern walls, and the extreme thickness of these northern walls (*S*, PLATE I *a*) in comparison with all other partitions of the range, indicate that they were added after the building was completed. The façade of this range has fallen everywhere except at this southeast corner. Judging from the section here preserved it seems to have been quite plain except for the medial cornice of three members.

The West Range (*T*, PLATE I *a*), just opposite the preceding, is almost as badly demolished. Destruction here seems to have

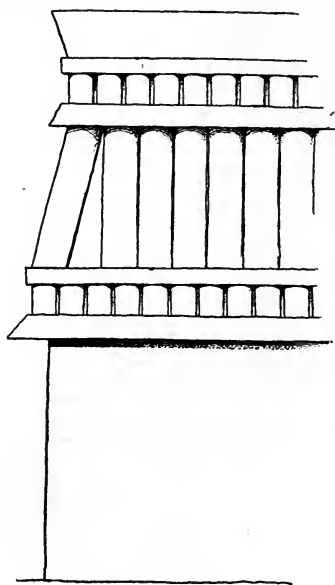


FIGURE 1. — FAÇADE OF RANGE *T*.

been due to the presence of a massive roof-comb even larger than that surmounting The House of the Pigeons. This has everywhere caused the collapse of the roof except in a small section near the middle of the building. This range is 115 feet long north and south, and 25 feet wide. It was composed of two series of rooms, one behind the other, each series containing six chambers, or a total of twelve for the range. Since the long middle wall shows no doorways, it is evident that entrance to the rooms of both series must have been effected through the exterior walls. At the southern end of the building the façade is in perfect condition. It is of unusual

interest, because it is the only one in the entire group now standing which shows sculptural decoration other than the triple-member cornice. The lower zone (Fig. 1) is plain. The upper zone is composed of a series of small decorative columns, which occupy the entire space between the two triple-member cornices, one of which divides the façade into two horizontal zones, while the other runs along the top of the building. These columns

lean inward. This gives to the upper zone the effect of a steep mansard roof. The middle member of both the upper and lower cornices is composed of a series of small drums, which harmonize well with the columns between them. These columns and drums were originally covered with fine white plaster and painted a bright red. Judging from the brilliancy of a small fragment that has been preserved, this building in its entirety must have presented a striking appearance.

Two feet south of this range *T*, and occupying the southwest corner of the South Court, there is another structure (*W*, PLATE I *a*). Débris is piled so high here, however, that it was impossible to determine either its ground-plan or its relation to the South Range *V*. Just west of Range *T* there is a small structure (*X*, PLATE I *a*) containing two rooms. It faces east, which is an additional item of evidence that this group was approached only from the north. (See its location with reference to the whole group in PLATE I *a*.) The rooms are 22 feet long north and south, 7 feet wide, and $11\frac{1}{2}$ feet high. The doorway between them is 5 feet 9 inches wide. It had a wooden lintel, the fragments of which now strew the floor. The exterior doorway, in the east wall, has been destroyed, but judging from the opening, it seems to have been of about the same size. This little building is extremely well preserved. Its façade is quite plain except for the medial cornice.

The south and remaining range of this quadrangle (*V*, PLATE I *a* and *b*) is built against a solid rubble substructure *Y*, which forms the immediate approach to the South Pyramid. This range is composed of two series of rooms, one behind the other, each containing eight chambers. These, including a transverse room in the middle, make a total of seventeen rooms for the building. A close study of this transverse middle room reveals an interesting state of affairs. Originally it seems to have been an arcade, like that of The House of the Pigeons, passing through the centre of the building and opening upon a court now occupied by the rubble substructure *Y*. At one period in the history of the group, prior to the erection of this substructure and the South Pyramid, there had been south of Range *V* a court or group of buildings to which this arcade had

given access. Later, however, in order to make way for the substructure *V*, this court was filled in to the level of the roof of Range *V*; and incident to these changes the southern end of this arcade was walled up. As a final step, in order to utilize the now abandoned arcade, a wall was built across its northern end in which a doorway was left, forming thus a new room. That we are dealing here with two different periods of construction seems probable also from the fact that there is a considerable difference in the orientation of the two parts of this group (PLATE I *a*). The bearing of The House of the Pigeons, for example, is north $10^{\circ} 36' 45''$ east, and that of the temple surmounting the South Pyramid is north $6^{\circ} 25' 15''$ east, or a difference of $4^{\circ} 11' 30''$ in the orientation of these two structures. While it was impossible to take the bearing of Range *V* because of its advanced state of ruin, nevertheless, measurements in Court *N* indicate that the bearing of this range is about the same as that of The House of the Pigeons. This, however, was to be expected, inasmuch as The House of the Pigeons *M* and Ranges *S*, *T*, and *V* constitute a unit by themselves. The shifting of the approximate north and south axis of the South Pyramid and the temple surmounting it $4^{\circ} 11' 30''$ nearer north than the approximate north and south axis of the rest of the group, would of itself indicate different periods of construction, especially since no buildings are found, immediately west of the South Pyramid, which could have interfered at the time of its erection with its being shifted somewhat toward the west so as to conform with the same north and south axis of the other members of the group.

This hypothesis of two periods of construction here is supported by a study of the north façade of Range *V*. Wherever it appears, the façade of this building seems to have been of the type most commonly found in the structures of this group, *i.e.* plain and divided horizontally by the triple-member cornice. Now, curiously enough, just before passing in front of the north wall of the re-used arcade, the cornice suddenly ceases and the wall is quite plain (Fig. 2). Moreover, the two ends of the cornice made by this break are not vertical but have the same slant and lie in the same north and south planes as the two sides of the arcade arch. This is strong evidence that

the cornice had been completed at a period when no wall stood at the north end of the arcade, and that later when this wall was built the cornice was not carried across its face. We have here, then, quite clearly two periods of construction: first, a period when the arcade passing through the centre of the South Range *V* gave into a court south of it; and second, a period after the South Pyramid and its substructure *Y* had been built, when the court south of Range *V* was filled in, and any structures that may have stood there were either torn down or covered up. The rooms of the South Range *V* vary in length from 18 to 22 feet east and west and are uniformly 8 feet wide. The doorways, which are all necessarily on the north side, vary from

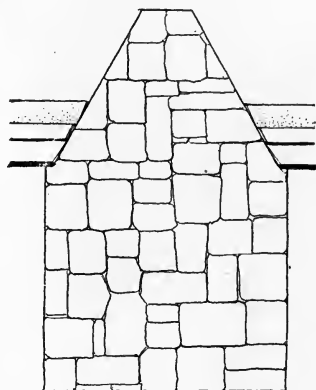


FIGURE 2.—THE BLOCKED ARCADE OF RANGE *V*.

3 to 4 feet wide. This range presents the only instance in the entire group of three intercommunicating rooms, it being possible to pass from the re-used arcade into the two rooms immediately west of it without leaving the building. At the western end of Range *V* and adjoining it at right angles there is another range of rooms on the same level (*Z*, PLATE I *a*), which extends along the western sides of *Y* and the South Pyramid. The southern end of this range, because of its location just below the South Pyramid, has been literally pounded to pieces by the stones falling from above. No attempt to reconstruct the ground-plan at this end was made, but the few rooms of the northern end which it was possible to measure were 18 or 19 feet long and 8 feet wide. It is not improbable that this range may have been composed of two series of rooms instead of one, as appears in PLATE I *a*, but ruin has advanced so far all along this western side that it would require much excavation to establish the original ground-plan.

The platform *Y* (PLATE I *a* and *b*) was reached by the third stairway *U*. This is 15 feet wide and rises from the low terrace which supports the South Range *V*, passing over that

building at its middle point (PLATE I *a* and *b*). Traces of the half arch, which was built under this stairway, allowing entrance to the arcade room, still adhere to the north façade at this point, though the greater part of the stairway is now in utter ruin.

Climbing over its fallen steps we reach the top of *Y*, which is 20 feet above the level of the South Court. This platform, as mentioned above, is the immediate substructure from which rises the final member of the group, the South Pyramid. It is 220 feet wide east and west, and extends back to the base of the pyramid, a distance of 130 feet. In the centre there is a mound of ruined masonry (*A'*, PLATE I *a* and *b*), which marks the site of the usual low platform (compare *E* and *O*, PLATE I *a* and *b*), and near by a fragment of the fallen picote, one foot and a half in diameter.

Two mounds (*B'* and *C'*, PLATE I *a*) extend across the eastern and western ends of *Y*, projecting from the north side of the South Pyramid, and having their summits on a level with its third terrace. They are 12 feet high. Each affords a building area of 50 feet north and south by 25 feet east and west. Originally these mounds supported at their northern extremities structures of some kind, which, in both cases, have now disappeared.

Along the west side of *C'*, the westernmost of these two mounds, and extending along the west side of the South Pyramid, is a range of seven or eight rooms (*G'*, PLATE I *a*). These rise from the level of the platform *Y*, and their back walls are built against *C'* and the South Pyramid. They vary in length from 20 to 22 feet north and south, and are uniformly 9 feet wide. Their roofs are on the same level as the summit of mound *C'* and the third terrace of the South Pyramid, or a height of 12 feet above *Y*. This Range *G'* is so placed that it rises from the edge of the masonry substructure *Y* against which Range *Z* is built (*Y*, *Z*, *G'*, PLATE I *a*). The roof of this latter range originally formed a terrace, now destroyed, in front of Range *G'*. Range *G'* has had to withstand almost as much battering from falling stones as Range *Z* just below it, and consequently its rooms are almost as completely demolished.

Just south of *A'* (PLATE I *a* and *b*) two steps cross platform *Y* from *B'* to *C'*, making a slightly higher level *D'*. From

this rises the fourth and last stairway *E'*, to the summit of the South Pyramid.

The South Pyramid itself is composed of nine terraces (PLATE I *a* and *b*), each 4 feet high, and each set back 4 feet from the edge of the one immediately below it. These terraces have vertical retaining walls and are faced with neatly dressed stone. The height of the South Pyramid proper, that is from *D'* to its summit, is 36 feet, but the total elevation above the level of the plain is 90 feet. The area on top is 116 feet long east and west and 30 feet wide. The only stairway *E'* is located on the north side, but it was too much destroyed to measure at any point.

The temple *F'* (PLATE I *a* and *b*) surmounting the South Pyramid is 104 feet long and 16 feet wide. The façade above the triple-member cornice has fallen, and it is impossible to say whether it had been sculptured originally or not. This building is composed of four rooms, three on the northern side in the same east and west line, and the fourth adjoining and communicating with the middle room of these three on its south side. These rooms vary in length from 30 to 32 feet, but are uniformly 13 feet high. The three front rooms are $7\frac{1}{2}$ feet wide, just twice the width of the single back room, which is very narrow, being but 3 feet 8 inches wide (*F'*, PLATE I *a* and *b*). The four doorways of this building are all in the north walls of the rooms to which they give access, those of the middle room and the narrow room just south of it being 6 feet wide, and those of the east and west rooms 5 feet wide.

It is significant that here again in the southernmost structure of the group we find the same condition prevailing, *i.e.* that entrance could be effected only from the north. Not only has the South Pyramid no stairway on any other side, but the building upon its summit has no exterior doorways excepting the three in its north façade.

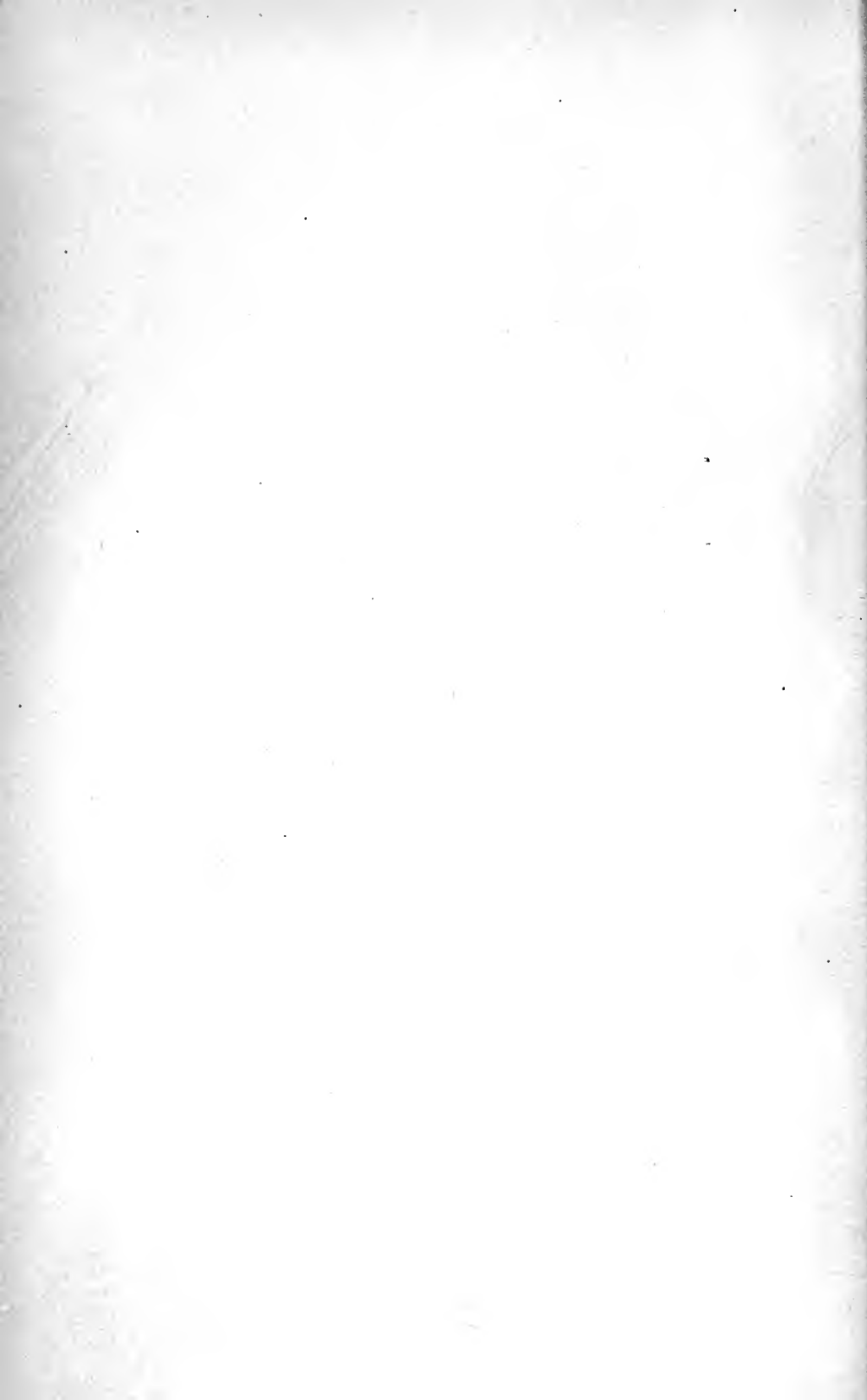
It was clearly the intention of the builders to compel all those whose duty or pleasure called them to this probably ceremonially important spot, to enter from a very definite direction by means of a formal approach. And even if future excavations should establish the presence of one or more stairways on the western side of the substructure, which now seems

unlikely, judging from the rather conspicuous facing of a building like *X*, PLATE I *a* and *b*, for example, to the east and away from the west, such a discovery would not alter the essential fact that the chief and probably ceremonial entrance had been from the north.

Standing upon the summit of the South Pyramid and looking northward, the scheme of the ancient builders clearly unfolds itself. The various ranges of rooms fall into an orderly arrangement around the sides of a series of successively higher courts, through which by means of the stairways and arcade runs the dominant idea of an approach to the summit of the South Pyramid. At this point all lines converge. Here, far above the subsidiary structures which line its thoroughfare, and admirably adapted in location and ground plan for such a purpose, towers a solitary temple, the ultimate expression of the group—its sanctuary.

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THE FOUNTAIN OF GLAUCE AT CORINTH

[PLATE III]

I. Κρήνη Καλουμένη Γλαύκης

Ἐς γὰρ ταύτην ἔρριψεν αὐτήν, ὡς λέγονσι, τῶν Μηδείας ἔσσεσθαι φαρμάκων
τὸ ὕδωρ νομίζουσα ἰαμα. — PAUS. II, 3. 6.

WHEN several years ago excavations were begun in and about the huge block of native rock 80 m. west of the temple of Apollo, the chief concern was the determination of another important point of Corinthian topography. As soon as it became evident that the fountain of Glauce mentioned by Pausanias had been discovered, excavation was discontinued. The details of the discovery were published with the recommendation that at some future time the work be resumed (*A.J.A.* IV, 1900, p. 461). The limits of the fountain house, the identification of which has been confirmed recently by the finding of the odeum just beyond (*ὑπὲρ τὴν κρήνην*), have now been determined; and though some questions can be answered only by further excavation, the results thus far obtained, prompt a reconsideration of the problem. Glauce is the best-preserved fountain of the times of the tyrants. At Megara the superstructure of the fountain of Theagenes is a matter of conjecture; the Enneacrunus has suffered such destruction that not even the ground plan is certain, and the restoration of its façade depends on a vase painting; the fountain house built by Eupalinus for the Samians is still undiscovered. Glauce, three of whose reservoirs are to this day covered by their original roof, is the most abundant source for information about the *krene* which proved so important a political asset of the tyrants of the seventh and sixth centuries.

The fountain of Glauce was cut in the rock of the ridge on which the temple of Apollo stands (Fig. 1). In form it

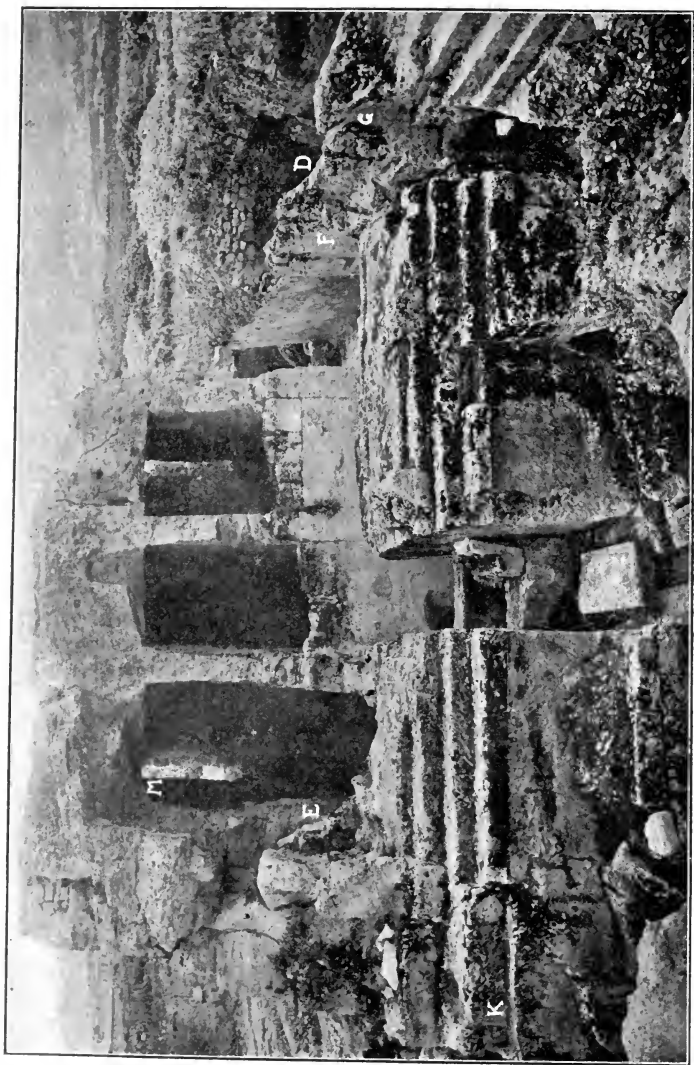


FIGURE 1.—THE FOUNTAIN OF GLAUCE — FRONT VIEW.

is roughly a great cube, 15 m. long and 14 m. wide, with a peculiar extension at the back. It consisted of four large reservoirs, I-IV (PLATE III), of a fifth which lies in front of II

and III, and of another (VI) at the northwest corner of the cube and at the western end of the platform which reached across the front and afforded access to the water. This platform is now badly worn, but seems originally to have been

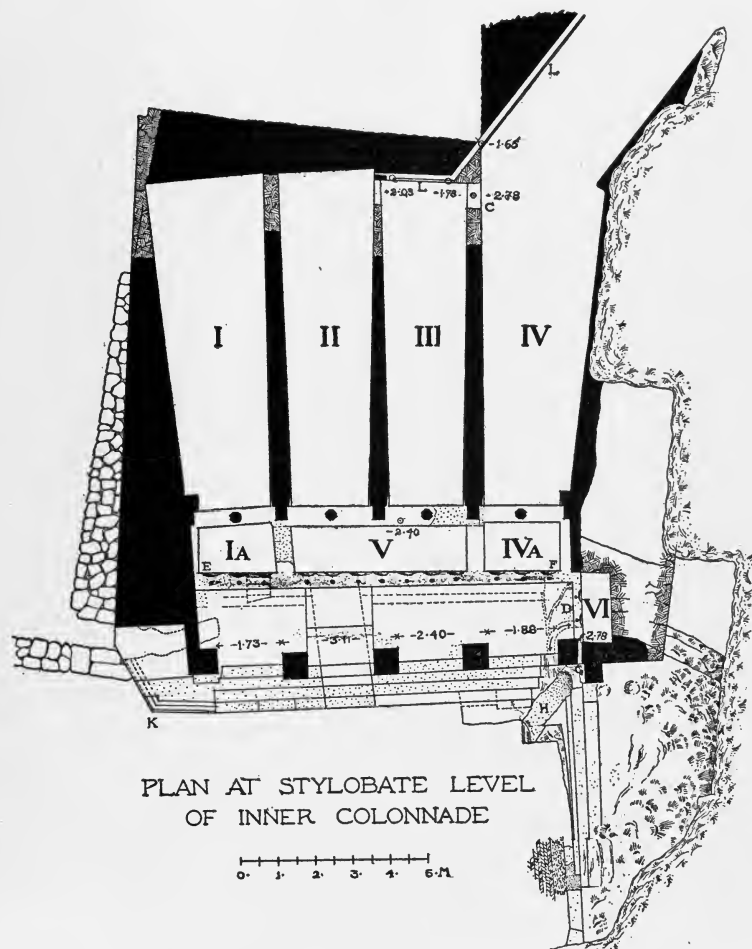


FIGURE 2.

about 2 m. higher than the floor of the reservoirs. As usual, the water was drawn in jars over a parapet, formed in this case of living rock but now broken away except in front of VI. The platform was approached by a flight of four steps

and was covered throughout its length by a vaulted roof of living rock. This rested along the outer edge on three square pillars between *antae*, and the five stumps of these supports still remain. The outer walls of the cube extended forward to the steps—the eastern wall with greatly reduced thickness (Fig. 2). The inner walls stopped at V, the back wall of which lay in the line of a second stylobate directly under the inner edge of the vault (Fig. 10). As the outer pillars stood in the line of the chamber walls, the inner were visible between them. These have disappeared, as well as most of the stylobate on which they stood. The inner walls terminated at this line in *antae*, which have been broken away except for a single stump.

The builders may have chosen a north front for the fountain because this involved the least exposure of the water to the sun and gave access to the cooling breezes from the Corinthian gulf, which, owing to the commanding position of Glauce, would blow in freely over the water. Whether the fountain house stood completely isolated is a matter of conjecture. It is certain that the Greeks quarried away the rock on the east side, for the even surface of that face is broken by a Greek water channel of careful workmanship (Fig. 3 A).

When Glauce was converted into a house in Mediaeval times, doors were cut in its walls. The east wall was originally quite closed. Original openings in the inner walls at the back were in some cases enlarged, so that it is now possible for one to look through the fountain from east to west (Fig. 3).

To facilitate the removal of the stone which was quarried within the chambers, a passageway 1.22 m. wide was cut through the platform to the depth of the chambers (PLATE III, Fig. 1). This passage is 4.33 m. long, but its continuation to the face of the rock was destroyed by later quarrying in front of the fountain. The fact that the inner walls of living rock do not reach forward to the platform, and that walls of squared blocks (PLATE III) are found here and at the north ends of II and III, is explained in the same way. When several hundred cubic metres of stone had been thus conveniently taken out, the five openings were closed with walls to the height of the

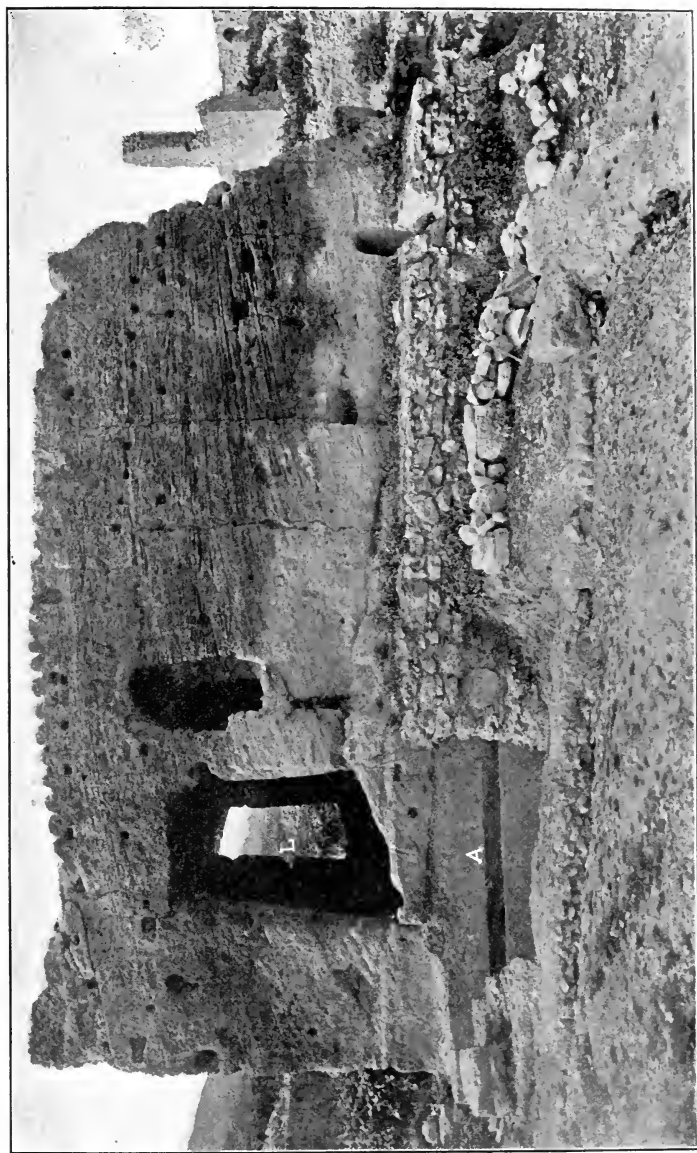


FIGURE 3. — THE FOUNTAIN OF GLAUCE — EAST FACE.

parapet, the passage through the platform covered with slabs, and the needed steps supplied. The passage was cut obliquely, but the cuttings for its cover were made straight with refer-

ence to the partition walls — a correction consciously sought (Fig. 1).

The fountain has been assigned to the time when the temple of Apollo was built, and the two have been regarded as parts of one building scheme. As no clamps were used in the fountain, we lack one important indication of date, but there is another detail which may throw some light on the matter. Concave

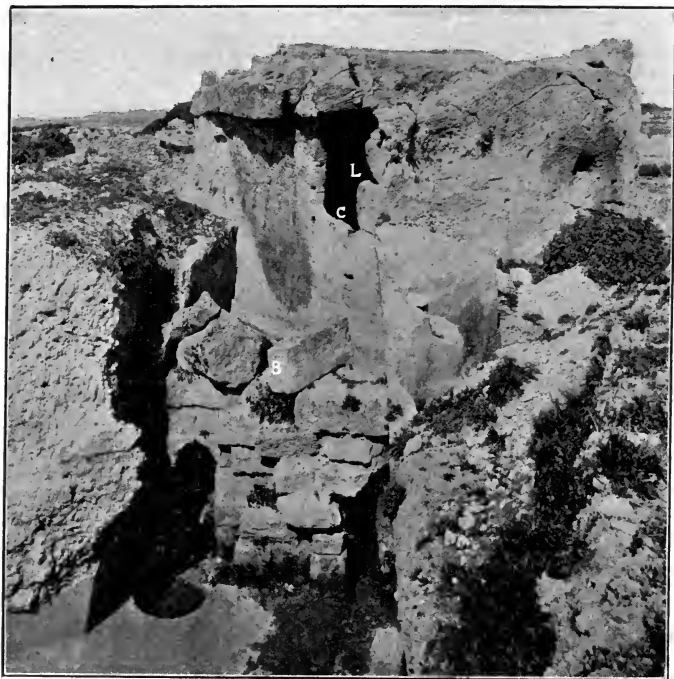


FIGURE 4. — GLAUCE FROM THE SOUTHWEST.

narrow cuttings, 0.10–0.12 m. long, hacked in horizontal bands with a rough little ridge between them (Fig. 4 *B*), are found on blocks of GlaUCE, of the temple of Apollo, and of the fountain frieze in the Agora, where the 4 clamp indicates the sixth century or about that date.¹

¹ But this method of dressing poros blocks may have been in use a long while, and it is of interest to find it illustrated on blocks still *in situ* in the euthynteria of the Sicyonian Treasury at Olympia, especially since Dörpfeld has shown that stone for the treasury was imported ready cut from Sicyon (*Ath. Mitt.* 1883, p. 69). The early date given by Pausanias for this building has, however, been

We may turn now to a somewhat detailed account of the fountain of Glauce,¹ beginning with chamber IV, which received the water first. It differs from the others in length and form (PLATE III), extending back of the cube, at first southwest for 8.50 m. and then west 13.50 m., so that the total length is 33.05 m. The width varies from 2 m. to 3.50 m. The upper part is gone with the exception of a piece of the roof supported by the partition wall III-IV. This shows that the portion included within the cube had the same height as its neighbors I-III. The extension must also have been completely covered, probably with a roof of living rock. Its walls have a marked inclination (Figs. 4-5). Had these been vertical, the span of the roof would regularly have been 3.50 m., and 4 m. at the second bend. The east wall just back of the cube still stands to a height of 3.53 m. and has a forward inclination of 0.44 m. Another example of a reservoir cut with sloping walls in the solid rock is found on the Aspis at Argos. The better preserved of two long cisterns there has at the bottom a width of 3 m., which gradually diminishes to 0.80-0.25 m. at the present top. Voll-

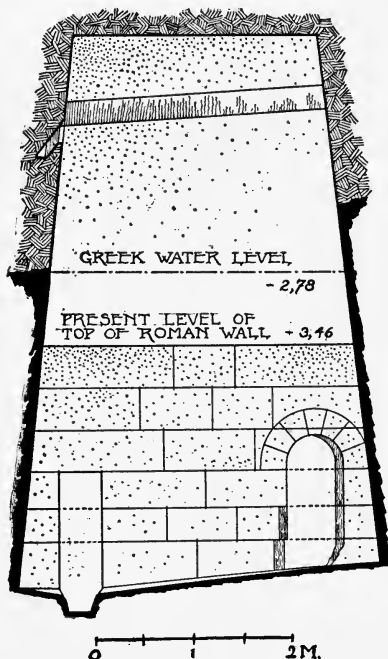


FIGURE 5. — CROSS-SECTION OF RESERVOIR IV AND ROMAN WALL.

rejected. Poros blocks at Delphi offer many examples of the same style of hewing, and it is a fact attested by inscriptions found there that this material was cut in Corinthian quarries (*B.C.H.* XXII, p. 304, l. 45). The style may be peculiar to the quarries of Sicyon and Corinth.

¹ I am indebted to Mr. B. H. Hill, Director of the American School, and to Mr. W. B. Dinsmoor, Fellow in Architecture, for helpful observations. The latter has kindly drawn the careful plans to which constant reference is made. Mr. H. D. Wood discovered the meagre but certain remains of the vault over the porch.

graff believes that the narrow opening was covered with slabs. (*B.C.H. XXXI*, p. 153.)

The water pouring first into IV, presumably at its extreme upper end (the upper half of the chamber has been quarried to the floor (Fig. 7) so that the inlet cannot be determined), filled this chamber, the small one (VI), and V, a chamber which served an important purpose in the system. The position of the narrow V in front of II and III made possible the drawing of water along three-fourths of the front, in case those chambers were empty. The original height of the walls of V is preserved only at the front of chamber III (Fig. 1), and the top block of the east wall has been identified. When chamber I had filled, water could be drawn all along the parapet. Connection between the chambers was effected by small openings at floor level; that of IV and V lay in the drain (PLATE III).

The fact that II and III were inaccessible from the platform makes it likely that they were the last to be filled. Water flowed from IV into III by means of an opening through their partition wall near the back wall of the cube (Fig. 4 *C*). This opening is 2.86 m. above the sloping floor of IV and is proved to be ancient Greek by the cement, a smooth hard composition containing little pebbles. This was applied to all interior surfaces in the fountain and presents by its excellence a striking contrast to the Roman stucco. Chamber II was filled by the overflow from III through an opening at the back wall. The thickness of the partition wall between these two chambers is noticeably less (0.05 m. at the back near the floor) than that of the other partition walls (0.32–0.40 m.). The water in II and III passed into V through the holes at floor level.

Not the least interesting is the small chamber VI at the west end of the platform. It is 0.44 m. shallower than the adjoining IV, whence its supply came through an opening 0.10 m. wide on that side and 0.25×0.25 m. on the other. Though the chamber was small, it increased the number of places by two or three at which water could be drawn—a clever expedient in the economy of the system. The heavy west and south walls have been quarried to within 0.75 m. of the floor, but the parapet remains 0.65 m. high and 0.25 m. thick (Fig.

1 *D*). On the inner face at the top, the surface has been worn concave in three places by the heavy jars of water drawn up over it, and on the top are two round tapering holes in which the women rested the pointed jars while they turned to take them upon their backs. Of a similar parapet in front of the other chambers the broken ends are still to be seen (Fig. 1 *E-F*). The stub at the east end (*E*) is 0.75 m. high and 0.40 m. thick. The inner surface shows the characteristic wearing from the jars. The parapets have been restored as equal in height with the walls of V.

Provision was made for the escape of the excess water in the following manner. At the northeast corner of VI (Fig. 1 *G*), 2.54 m. above the floor of that chamber was an



FIGURE 6.—EXCESS ESCAPE CHANNEL.

opening into a small channel 0.10 m. high and 0.13 m. wide (Fig. 6 *G*). The immediate connection with the chamber is broken away to the extent of 0.06 m., but it may readily be restored. From the corner it bent around to the north and in line with the parapet pierced the pilaster (Fig. 2 *G*), with at first a slight and then a marked drop. It emerges near the corner formed by this pilaster and another facing north. The rock has been broken off close to the channel so that its top is nowhere completely intact, but its character is unmistakable. Smoothly cut, it rivals in carefulness of workmanship the other

Greek channels of the fountain. Thus, when the capacity of all six chambers was overtaxed, the excess water escaped by this means, finding its way probably to a channel which crossed the front and east sides of the fountain and terminated perhaps in some cistern in the vicinity. For the part of the channel cut in the east face breaks off at the present southeast corner of the cube where later quarrying has disturbed Greek conditions, thus making it impossible to determine the destination of the water. And likewise in front of the porch later quarrying which cut into the steps destroyed the channel there, save for a short piece at the northeast corner. Here the normal depth of the channel, 0.17 m., is not maintained—the channel in front thus appearing to have been shallower than its continuation on the east face. This means of carrying away the excess went out of use when the tunnel under the east half of the platform was cut through. This tunnel, the inner end of which is ancient Greek, was made before the Roman stoa was built immediately on the east. The foundations for the west wall of the stoa were placed snug up to Glauce—so close that at the southeast corner of the cube the rock was cut back to make a bed for the foundation (Figs. 2 and 3) and the channel filled with rubble. The date of the stoa, which is not mentioned by Pausanias, is uncertain.

The method of the provision for excess water shows that no fountain of spouts existed in immediate connection with the system, and by giving the water-level it makes possible a calculation of the capacity of the fountain. When all the chambers were brimful, the total amount of water was 527 cubic metres, allowance being made by average for sloping floors, inclining and converging walls. This is an amount considerably greater than was provided for in the Megarian fountain, the capacity of which was 305 cubic metres. In the case of the latter, the excess escape has not been found, but the incrustation on the walls affords a satisfactory clew to the depth of the water. The floor area of the Corinthian fountain is 172 square metres, that of the less capacious Megarian 244. The maximum depth of water in the latter was 1.25 m. The conjectural character of the ground plan in the case of the Enneacrunus would render any calculation of its capacity extremely uncertain. The water was 1.50 m. deep.

The question of drainage may now be considered. A narrow gutter runs nearly the full length of IV and across V to the drain which lay in the wide passage cut through the platform (PLATE III, Fig. 1). In V the drain is 0.04 m. lower at the bend than at a point below the steps. This may be a device for collecting sediment and thereby preventing accumulation in the long course of the drain. The Romans must have regarded this feature as a defect, for they sought to give the drain an uninterrupted downward grade by a filling of brick and mortar. Toward this gutter all floors slope. The drain holes of II and III opened directly into it. Chamber I was drained and cleaned by an opening into V, which is 0.025 m. lower than either of the chamber's other connections. The purpose of the opening into the tunnel (PLATE III, Fig. 10) seems to have been to empty I without necessitating the disuse of V. The important fact, which seems not to have been noticed in discussions of fountain construction, is that all the chambers were not drained and cleaned at once. While I, II, III, and V were undergoing the process, IV and VI furnished water, and *vice versa*, when IV, V, and VI were empty, I, II, and III contained the supply.

In the latter case the stream of water which poured regularly into IV at the upper end had to be diverted. It flowed in a high channel along the south and east walls of IV to the cube (*L* in Figs. 2, 4, 5). The elbow of the channel found embedded in the Roman cross wall fits the angle made by those two walls. At the cube the channel still preserved (Fig. 4 *L*) passes 4.15 m. above the floor to III, where it bends and crosses the back wall of that chamber with a marked grade of 1 in 8. It ends in the line of the partition wall III-II, in a small hole opening into II. Some question may arise as to the date of this hole, for it is not well cut. But that the original design was to have the channel end in II, so that water might be carried past III, is a safe inference, first from the fact that otherwise the channel had no need to cross III and secondly because chamber II reaches 0.30 m. back of III (PLATE III), as if to give the water a free fall into II. Then again a plug hole like the existing one could be more easily controlled from the large opening in the roof, which is thought to be Greek.

This opening was probably somewhat enlarged and provided with rudely cut steps to serve as a means of ascent to the roof when Glauce became a house. There was also a large opening in the partition wall of II-III at its south end, near the end of this channel. This is shown by the presence of ancient Greek cement on the back wall where the partition wall would have joined it, but how large an opening there was cannot now be determined, for it became a door in the house period and has since been made larger (Fig. 3). The dimensions and character of the channel are those of the one on the east face of the cube (both appear in Fig. 3). Though it has been exposed to the wearing influences of the atmosphere and has lost every trace of cement, the careful cutting is still in evidence. The water carried by this channel flowing along IV poured into III and II, sometimes only into II, and thence passed to I, where it could be drawn from the platform. It is possible that III was sometimes filled and not II, and then the water passed from III into V, since any attempt at working out the problem of the distribution of the water must allow for the fair probability that the four large reservoirs were filled successively rather than simultaneously. The water in II, when V was empty on cleaning days, passed into I though a cement-lined hole at the floor level of that chamber (PLATE III).

The position of this hole near the front wall of II prevented a constant forward movement of the water in I from the back of the chamber to the front. In the case of II, III, IV the water poured in at the upper end of the chamber and moved forward to the place of drawing, for it is probable that when all six reservoirs were full, the plugs in the openings from II and III into V were removed. A peculiar feature of II, namely, that its floor is 0.22-0.25 m. lower than that of I and III, allowed the sediment to settle on this lower level and to remain undisturbed when the water flowed into I. Such accumulation could be removed and the chamber flushed by means of the hole opening into the drain in V. The carefully cut and cement-lined opening from II into I is 0.095 m. in diameter at the end in II and 0.08 m. at the other. This tapering, which is true also of the opening from III into V, follows the normal direction of the flow between those chambers. The excess

from I-II-III apparently flowed from the latter into IV by means of the opening (Fig. 4 *C*) at the back of the partition wall between III and IV. In fact, IV may thus have been refilled.

The high channel in IV which on cleaning days made it possible for the system to supply water is of importance in

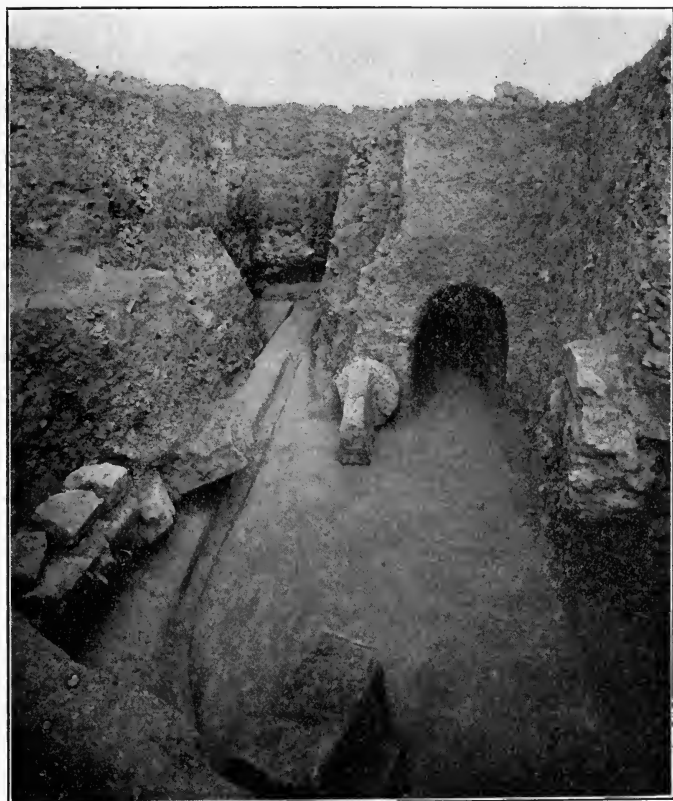


FIGURE 7.—UPPER END OF IV, SHOWING HOW THE WALLS HAVE BEEN QUARRIED AWAY.

another respect. The almost complete destruction of the walls of IV back of the cube (Figs. 4, 7) has left in uncertainty the height of the roof of that part. In one place the sloping walls have a height of 3.53 m., but in the western half they have been quarried to the very floor (Fig. 7). Now the bottom of the channel in question is 4.15 m. above the floor at the back of

the cube and it sloped up somewhat to the point of inlet, keeping within IV. The roof had to be still higher. As the height of the roof preserved is 5.57 m., it becomes probable that this height was continued back over the extension of IV.

It remains to consider what the means of draining VI were. There is a rock-cut tunnel (PLATE III, Fig. 1), starting from the east side of the chamber; this curves around under the platform and seems, before the Roman quarrying, to have joined the drain of the system. The chisel marks show that the tunnel was cut from the chamber toward the stair. At the inner end it is 1.05 m. high and 0.50 m. wide. The south wall has not a gradual curve, but breaks forward 0.04 m. several times. The bottom is approximately 0.60 m. below the floor of the chamber, which, except around the edges, has been cut into and badly damaged. The tunnel, which is Greek, was sealed at the inner end by a wall with a drain hole at the bottom of it. Towards the tunnel entrance the floor of the basin slopes from every side. The removal of the wall must be referred to the time when the tunnel was used in connection with two later channels. A glance at the plan will show that the tunnel was made for neither of these, but had a conduit of its own before



FIGURE 8.—THE ARCHITRAVE.

the rock pavement in front of Glaucus was quarried by the Romans. The tunnel in Greek times may have been used in drawing off a portion of the contents of IV.

Up to this point the details of construction which played an immediate part in the operation of the system have been considered. A question now arises as to the ornamental features of the fountain, if any there were. Its character would admit only of the simplest ornamentation, and of such a fragment has been preserved. In the upper northeast part of the cube, scantily protected by the heavy roof and east wall, is the weather-beaten bit of a rock-cut architrave (Figs. 1 *M*, 8, 9, 10). The plane of the bottom coincides with the ceiling of I. The vertical face reaches up 0.29 m. and is crowned by a simple

cornice. Above, the rock is cut back 0.12 m., and from there upward and forward the roof curves distinctly, but it breaks



FIGURE 9. — VIEW FROM WEST ACROSS RESERVOIRS.

off 1.50 m. from the architrave, and the further course of the curve is a matter of probability. It seems such that its highest point stood approximately over the middle of the

space between the architrave and the rock-hewn pillars on the outer edge of the platform. In the angle formed by the east wall and the vault there is a bit of that excellent cement used in the chambers, to testify that the vault is Greek. As the roof is preserved in front of the architrave only at the northeast corner (Fig. 1) (the break retreats more and more as it is followed toward the west), the evidence for a vaulted ceiling is

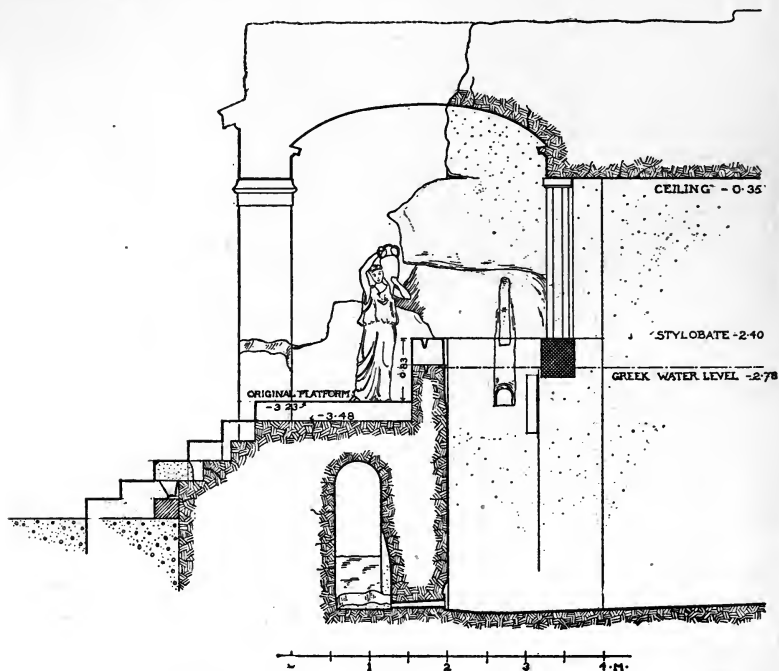
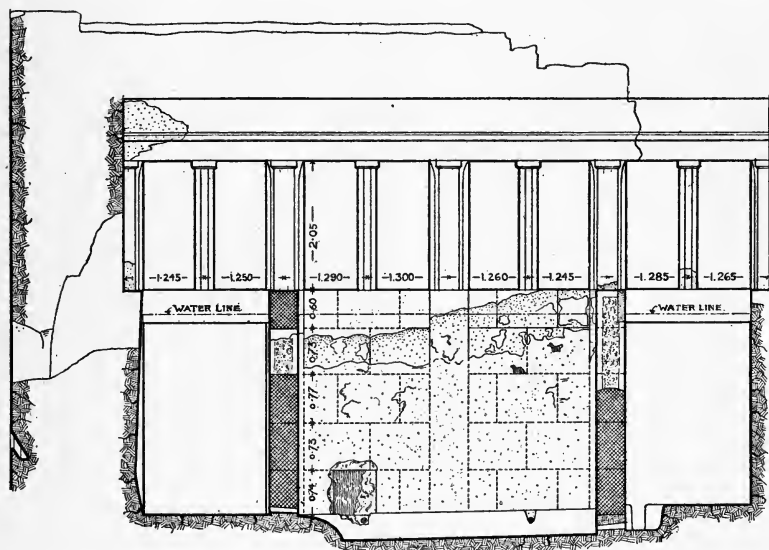


FIGURE 10.—CROSS-SECTION THROUGH PORTICO.

confined to that place, but it may safely be assumed to have extended across the whole porch and may be thought of as an expedient for reducing the weight of the rock, since the span from architrave to pillars was 3.30 m. (Fig. 10). The fact that a vault existed over the platform makes it possible to determine the height of the rock-hewn pillars, the broken stumps of which remain. If one makes the fair assumption that the vault terminated above the pillars in an architrave corresponding to that of which a piece is preserved, a height of 2.88 m. is obtained for the pillars including capitals.

Again, the fragment of the architrave makes intelligible certain cuttings that prove most important in the restoration of the interior of the porch. Beneath it the Greeks cut in the walls of I two holes, 0.10 m. deep, 0.45 m. wide, and 0.55 m. high, opposite each other, and 3 m. above the floor (Figs. 9 *N*¹, 10). The same thing may be observed in IV also (Fig. 9 *N*²). The portion of the west wall of I in which the cutting was made has been broken away, but both cuttings can be seen in IV, the east one of which contains abundant



SECTION THROUGH DRAW-BASINS

0 1 2 3 4 M.

FIGURE 11.

remains of Greek cement. A bit of the right angle which the cement forms shows that the beam was lowered into these cuttings before the Greeks cemented the chamber. As these beams were not set deep in the walls (less than 0.10 m.) and had no other support, it is obvious that whatever rested upon them fulfilled no necessary structural function. The idea therefore suggests itself that they, together with the back wall of V lying in the same line (Fig. 2), had at their middle points shafts which reached up to the architrave (Fig. 11). A fragment of

an octagonal shaft of poros has been found in the neighborhood of Glauce, with the required diameter of 0.28 m., and has been assigned to this stylobate. One thinks immediately of the octagonal shafts in the fountain of Theagenes (Fig. 15).¹ At the end of the partition wall between III and IV the stub of an anta is preserved, and with the help of this others have been restored at the ends of the other partition walls (Figs. 2, 12). For these antae the walls were narrowed to the proper width.

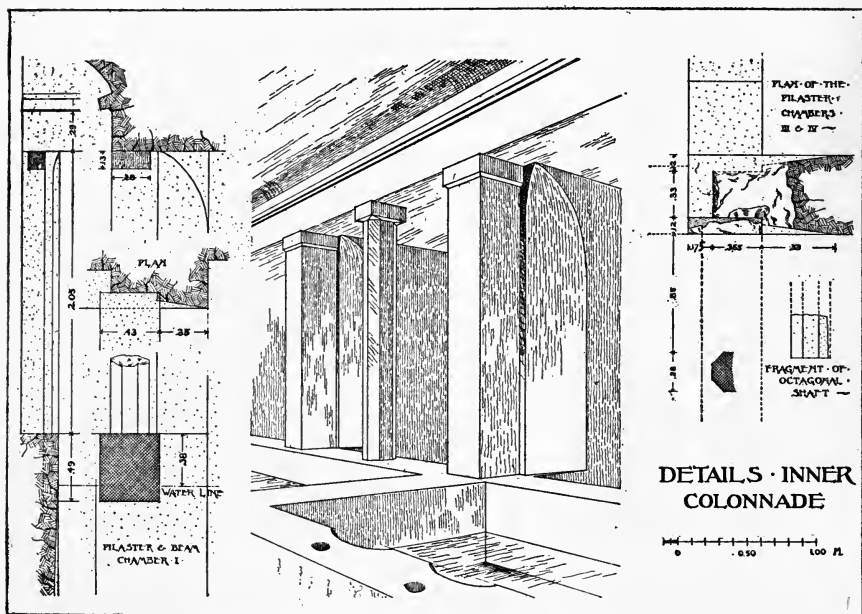


FIGURE 12. — DETAILS OF INNER COLONNADE.

This is best seen in the case of the partition wall between I and II, where the narrowing reaches down only to the level of the stylobate. Yet another important feature is explained by the presence of the shafts. In I and IV the outside walls advance at a point just back of the stylobate (PLATE III). The simple reason is that the four long chambers thus acquire at the stylobate an approximate width of 2 m., and a uniform intercolumniation results.²

¹ See also Furtwängler, *Aegina*, p. 84.

² The two marble lion-heads found in chamber V presumably belonged among the decorative features of the fountain at some period, but they cannot be definitely placed. See *A.J.A.* VI, 1902, p. 423.

The interior surfaces of the porch were covered with cement, as were those of the chambers. The pilasters of the outer row of pillars show traces of it on the front face, a survival suggesting that the façade was also so covered. The walls and ceiling of the Athenian Callirhoe received in Pisistratean times a coat of stucco. Ross (*Reisen*, I, 130) describes a rock-hewn system in Ceos, and here the reservoir and early Doric column of living rock were similarly treated. But apart from any example of such practice, the soft and porous character of the rock in Glauce, which suffered from exposure to the elements, would require a protecting coat of stucco.

Before the Glauce of Roman times is considered, a moment may be spent in conjecturing what the condition of the fountain was when the Romans had destroyed the city. There is some ground for the suspicion that before the coming of the Roman rebuilders of Corinth, Glauce was already partly ruined. The cross wall in IV, which is referred to the early years of Roman reoccupation, contains several pieces from the cemented walls. It would thus appear that, at the time the cross wall was built, reservoir IV had in part been destroyed. It is significant that among the pieces is one from the channel which carried water to III, when IV was for any reason empty, a fact which shows that a channel of prime importance in the Greek system of distributing the water had been destroyed before the Romans repaired IV. In fact, the position of the cross wall seems to have been determined by the ruined state of the Greek walls behind it (Figs. 4, 7).

Coming to the part of IV lying in front of the Roman cross wall, one meets again with a hint that the roof and the upper part of the west wall may have gone before Roman times. A comparison of the east and west walls of Glauce shows a noticeable difference in width (PLATE III, Fig. 2). The east wall, which has been preserved unchanged from Greek times, is 2 m. thick in the line of the inner stylobate; on the other hand the present west wall at the same line is only 0.60 m. and a little farther back it is only 0.45 m. While the east wall could and did without danger grow thinner as it neared the thick back wall, the west one must have maintained a nearly uniform width, because the back wall did not cross IV to assist in bear-

ing the weight of the roof. It is certain that the Greeks did not support the roof along the west side with the present thin wall, a fact which is confirmed by a glance at the west face of it, which is rough, whereas the outer face of the east wall is smooth. Was the quarrying into the west wall done by the Romans, when the wall no longer supported the roof of IV, or did the Romans by quarrying too closely cause immediately or ultimately the fall of the roof? It is tempting to make the collapse of this section contemporary with that of the portion back of the cross wall. Evidence that the façade was destroyed at this time is not at hand, and if it was destroyed then, we should have to suppose that the stumps of the pillars remained standing throughout the Roman period, an unsightly obstacle on the platform.

The façade was partly in ruin when the inner walls of VI were quarried to within 0.75 m. of the floor, since this left the vaulted roof with too little support at the northwest corner. But the time when those walls were quarried away is uncertain. A set of foot holes carelessly cut in the east wall to facilitate descent may mean that the basin was in use in Roman times. This would have been possible, however, when the roof above was gone.

While it is conceivable that Glauce was found intact, and repaired only after a period of use by the Romans, it is also conceivable that the Roman destroyers of Corinth in 146 B.C. wrecked a structure so essential to the life of the city. The long fourth chamber as the most vital, because it first received the water supply, and the façade as the most pleasing feature of the structure might well have borne the brunt of the attack. The Roman senate had ordered that the city should not be rebuilt.

The façade of the fountain was broken away (Figs. 1, 9) and not a fragment of it has been identified. The line of breakage is from 2.50 to 4.50 m. back of the pillars, so that the difficulty of restoration is greatly increased. The broken stumps along the outer edge of the platform show that three squared pillars between pilasters stood there. They were 2.88 m. high and must have had the simplest of capitals if they had any at all. How the rock above was treated is uncertain; perhaps a plain

architrave, with Doric frieze and pediment, was used. The fact that the heavy east wall stopped 1.35 m. back of the line of pillars, save for a strip 0.25 m. thick which reached to the pilaster (Fig. 2), perhaps indicates an expedient for setting off the façade. The Doric frieze for early fountains is attested by the François vase, but it is uncertain what form of roof is there intended. The gable has the sanction of sixth-century vase painting and is not without a real, though later, example in Corinth itself. Pirene on Acrocorinth has a pillar between pilasters and above a tiny pediment.¹ At Cyrene the face of the cliff above the fountain of Apollo shows a gable cutting into which Smith and Porcher (*Discoveries in Cyrene*, p. 26, pl. XI) believe the pediment of a portico to have been fitted.

The exact source of the water supply for Glauce is unknown. The native rock a few paces back of the fountain has been examined for a distance of 73 m. by digging a trench to the level of the inlet into the fourth chamber. But the expected conduit cut in the rock in the direction of the acropolis has not been found. The supply was not surface water gathered in the vicinity, but was brought from a distance. The unique position of Glauce, which is best appreciated when it is compared with the Corinthian fountain of Pirene, warrants this conclusion. The latter lay low in a hollow under a projecting ledge of conglomerate, and it had an abundant watershed to which the acropolis contributed. The Greeks simply recognized a natural reservoir and by opening up conduits in the clayey soil under the conglomerate developed latent possibilities of water supply. Water in front of Pirene still covers the hard pan. With Glauce, however, it was quite different. Instead of being situated under a ledge it was cut in the top of one where no spring existed and it did not have a watershed like Pirene.² Only from the south and southwest could water have come, and what did come was below the floor. The well dug at a late

¹ See Göttling, 'Die Quelle Pirene auf Akrokorinth und das Kraneion unterhalb Korinth,' *Arch. Ztg.* II, 1844, pp. 326-330.

² The conduit which brought water to Glauce must have had an uninterrupted gradual slope toward its destination. This was a characteristic of early Greek conduits. The principle of forcing water up by means of water-tight pipe lines seems to have appeared first in Hellenistic times. Cf. Weber, *Jb. Arch. I.* XX (1905), p. 209.

date just behind the Roman wall (Fig. 4) has a depth of 4.35 m., and at this depth three tunnels reach out to gather the water. The depth of water-level beneath Glauce is explained by the fact that the rock falls away toward the acropolis. The strata of the rock incline the same way. The site of Glauce was chosen without regard to a watershed. The supply came from some spring, perhaps, as has been suggested (*A.J.A.* IV, 1900, p. 461), from that at the base of Acrocorinth, where to-day the water is abundant and good. A confirmation of this opinion is afforded by the evident contrast in quality between the water that flowed to Pirene and that which supplied Glauce. The water of Pirene has left a deposit on the walls of the chambers, but the walls and floors of Glauce show only the very slightest trace of any incrustation. Pirene depended upon the percolation of subsurface water, and by this process were gathered those ingredients which so completely and so obstinately concealed and preserved the Roman painting which has been found on the walls of its reservoirs.

According to the ancients (Strabo, VIII, 379; Pausanias, II, 5, 1), water flowed from the spring near the summit of the Acrocorinth to the spring at the base of the hill, which, as has been said, may have been one of the sources of Glauce. Their characterization of this water and that of Pirene is interesting. The spring on the summit, says Strabo, was full of transparent and potable water; on the other hand, Pausanias says that the water of Pirene, though pleasant to the taste, was used in the tempering of bronze, and he attributes the distinctive color of Corinthian bronze to the nature of the water. In the days when conjecture identified the Bath of Aphrodite with Pirene, Götting suggested that the ochre-like deposit may have given a color to bronze (Frazer's note on Pausanias, II, 3, 2). Perierander, therefore, if he was the builder of Glauce, rendered the Corinthian public a service by bringing to the heart of the city water which offered no attraction to coppersmiths.¹

¹ "Although Strabo and Pausanias agree in regard to the reported communication between the well of the Acrocorinthus and the fountain Pirene of the lower city, they differ as to the position of that lower fountain. Pausanias describes it as on the road from the Agora to Lechaëum, Strabo as issuing from the foot of the Acrocorinthus; and thus it appears that there were three sources at Corinth all of which at some period of time at least, were known by the name of Pirene.

The problem presented by the roof of Glauce is a troublesome one. There are two beds for walls, the interpretation of which is made difficult by the fact that large portions of the roof are gone. One of these wall beds, 0.55 m. wide, is carefully cut along the back edge of the cube, but so much has been broken away that one cannot say how far it extended. (Fig. 4). This bed ends toward the east at a roughly cut block of living rock which rises 0.90 m. above it, and happily gives a clew to the height of the wall. The vertical surface of the block for a distance of 0.60 m. from the top has been smoothed in contrast to the portion below and behind the line of the wall. The wall was thus 0.60 m. high. A gutter, perhaps Roman and similar to the long one on the platform, ran along inside toward the west. The second wall bed, 0.50 m. wide, and 7.25 m. in front, runs parallel to the first and was made by cutting away the rock on either side to a depth of 0.13 m. (Fig. 13). In front of this raised bed, as far as the broken edge and behind for a distance of 1.25 to 3 m., the roof is even enough, but farther back there are deep quarry cuttings. A large block of living rock $1.80 \times 1.25 \times 0.50$ m., still remains. How far west the forward bed extended is uncertain. It breaks off over the partition wall between II and III, beyond which the roof, apparently at a later date, has been more deeply quarried. The base of the raised bed is 0.60 m. higher than the other. That a wall stood on the raised bed at some time is clear from the presence of cuttings for a door 0.50 m. from the east end. When Glauce became a house and a third story was added, these wall beds must have been in use. Whether the raised

All the three are still observable; namely, the well in the Acrocorinthus, the rivulets which issue at the foot of that hill, as described by Strabo," etc. (Leake, *Morea*, III, p. 242.) Tozer (1893), *Selections from Strabo*, p. 218, note 1, does not share Leake's opinion, but regards Pausanias's definition of the location of the lower spring as more exact than Strabo's. According to Tozer, both meant the same spring; but the words of Strabo: τὴν πρὸς τῇ ῥίξῃ τοῦ δρύος κρήνην ἐκρέουσιν εἰς τὴν πόλιν apply to the spring which Leake selected rather than to the Pirene near the Lechaëum road. For the former lies at the foot of Acrocorinthus, from which it could flow out to the city, while the latter is not situated at the base of the mountain (though it lies in a city which is πρὸς αὐτῇ τῇ ῥίξῃ τοῦ Ἀκροκορίνθου), but so low in the heart of the city as to be unable to flow out to it. The conduits leading from the hypaethral Pirene appear to have been drains rather than carriers of excess to be used elsewhere.

bed belongs in that period is a question, but the character of the other is too good to warrant this supposition. It is suggested that this wall belonged originally to the finished form of the roof. From the high ground 50 paces back of Glauce (Fig. 13), where hard-pan lies near the surface, the roughly quarried sloping roof is plainly visible. It may not have been so scarred in early Greek times, but if a wall 0.60 m. high were restored on the back bed, the roof as far as the raised bed would disappear from view. Evidence for this wall has been



FIGURE 13. — VIEW OF ROOF FROM THE SOUTH.

noted above, and is strengthened by the fact that a piece of the wall itself has been identified — the poros block 1.50 m. long, 0.40 m. wide, and 0.60 m. high, which lies on the cross wall in IV (Fig. 4 *B*). The dimensions meet the requirements, and the bottom was prepared for a bed. The finish of the top shows that another course was not laid upon it. The outer face hacked in horizontal bands is characteristic of blocks in Glauce, and the inner face is very rough.

GLAUCE IN THE ROMAN PERIOD

It is probable that soon after the Roman reoccupation of Corinth the fountain was repaired. The chief feature in the

Roman repair was the cross wall in IV, which was placed at a point where the chamber walls survived to the necessary height. The bed for it was cut deeper at the west end to get rid of the slope of the floor. The part of IV behind the wall was filled in at once, for that side of the wall was not intended to be seen (Fig. 4). Two coats of stucco at different times were applied to the wall, and later a third was added which was extended to all surfaces, except the floors, that came in contact with the water. The hard Greek cement was picked (Fig. 1) that the inferior Roman might be more adhesive.

The parapets were lowered, the long one 0.35 m., the short one, in front of VI, 0.48 m. The Greek excess escape was thus made useless. The Roman level in front of Glauce, after the quarrying there, was that of Greek times, if the channel (Fig. 1 *K*) at the northeast corner determines the latter. The filling is uniform, without trodden layers, up to the level of the first Roman step. The present steps are probably not Greek. Those extending north from the sixth reservoir vary in height from 0.27 m. to 0.33 m., the others from 0.24 m. to 0.25 m. The only indication that a flight of steps existed here in Greek times is the presence of a pilaster facing north (Fig. 2). This may imply another colonnade, but no traces of pillars have been found. The present flight seems not to have been cut with reference to the pilaster.

The source of water supply in Roman times calls for brief mention. As yet no traces of the Roman conduit that brought the water have been found, but it was only natural that those who repaired the fountain should make use of the Greek source. There is an argument of some weight in favor of the view that there was no change in the source of supply. Pausanias mentions no spring on the ascent to Acrocorinth. The argument from silence in the majority of cases is indeed of doubtful value, but in this instance it is significant, and the following remarks of E. Curtius (*Ges. Abh.* I, p. 117) are worth quoting: "Begleiten wir Pausanias auf seinen Wanderungen durch Griechenland, so finden wir, dass er für den Bau des Landes kein Auge hat; er übersteigt die Hochgebirge, ohne sich um ihren Zusammenhang und um ihre Höhe zu kümmern; er nennt nicht einmal die Namen, während er bei der kleinsten Quelle

verweilt und von ihrer Beschaffenheit und ihrer Verehrung Auskunft giebt." Perhaps the inference then is that water was not available as it is now close under the Acropolis near the modern ascent, but that it was conducted by conduit to Glauce. The passage in Strabo (VIII, p. 379) does not militate against the inference. Though he says there was at the foot of the Acropolis a *κρήνη*, he also tells us that enough flowed to the city to afford a sufficient supply. The words *ὥσθ' ἱκανῶς ἀπ' αὐτῆς ὑδρεύεσθαι* point to a system of some size. The *κρήνη* Glauce not far away needed only a cross wall in one chamber to be ready to receive the sufficient supply somewhat vaguely defined by Strabo as *ἐκρέουσα εἰς τὴν πόλιν*. When Glauce fell into disuse, the old source furnished water at a point higher up, near the Turkish and modern spring. Such has been the usual fate of Greek conduits.

Some time later two openings were made through the Roman transverse wall in IV (Fig. 5), both seemingly testifying to a search for water. The one at the left suggests a quest in the line of the Greek gutter. It was poorly cut from in front. The west opening with its false arch was made probably to give access to the well immediately behind. This too was roughly cut at floor level from in front, and the threshold is a thin piece of the lowest course of the wall which escaped removal, because it lay in the cutting in the floor. The back part of the wall was torn out to facilitate the sinking of the well, which belongs to the period when Glauce was used as a house. But that this degradation of the fountain to alien purposes occurred only after many centuries of service is another tribute to the excellent character of Greek construction.

II. THE KINSHIP OF FOUNTAINS IN THE PERIOD OF THE TYRANTS

The development of the Greek water conduit and the contribution which one system makes toward the interpretation of another are themes best considered together. It is to be regretted that the excavation of the Pirene of Periander and of the fountain at Megara has not been completed and that the Enneacrunus is merely a name. But even so the meagre materials repay comparative study.

The obvious distinction has been formulated that, while Greek water conduits were regularly placed underground, oftentimes at a remarkable depth, the Romans carried their supply frequently long distances above ground by means of arched aqueducts. To explain the practice of the Greeks it has been suggested (*cf.* Gräber, *Ath. Mitt.* 1905, p. 21) that underground conduits were less easily destroyed in time of war, though the supply might be cut off as the Athenians cut off that of the Syracusans (Thucyd. VI. 100), and that the water in them was kept cooler. It seems a question whether this suggestion gives original motives or simply states inherent advantages subsequently recognized. Still more doubtful is the poetic explanation (*cf.* Daremberg and Saglio, I. 338, *s.v.* *aquaeductus*) according to which the Greeks, observing mountain streams disappear and later reappear fresh and cool, imitated natural subterranean courses when they constructed conduits, nor can it safely be believed that the Greeks followed the example of the Phoenicians in choosing one of two simple alternatives for the delivery of water. The problem may well have been worked out on Greek soil. A more primitive means of getting water could hardly be imagined than that shown by the pre-Pisistratean system at Athens. Here first a number of wells were dug with short arms reaching out to gather the water. Then wells lying close together were connected. This is the story of that curious network of wells and tunnels marked T^1 – T^7 on the plan (Gräber, *l.c.* pl. I). The next step was to prolong a tunnel to an outlet below a natural terrace whither the water flowed of its own accord and could be stored in a rock-hewn basin. Traces of such a reservoir are still to be seen in the Pnyx rock. It was destroyed by Pisistratus to make room for the larger and more elaborate Enneacrunus. Such were the beginnings of the underground conduit at Athens.

In other places, like Corinth, it is equally obvious how the underground conduit came into being, and here by a different method. The early inhabitant saw water trickle forth from beneath ledges of conglomerate and sought in time to increase the supply by digging in the clayey soil at the point where the water issued. Later came the extension of such channels

under the conglomerate with branches that gathered the water from a wide area and brought it to a basin or a group of basins. This is essentially the story of Pirene.

Pisistratus had a precedent for his great underground conduit. It may be regarded as the extension, the elaboration, of the early Athenian system. Between the two came the Megarian, which, according to Gräber, was the model for the Athenian. The great system of Pisistratus, like that of Theagenes, shared the character of the pre-Pisistratean work in that it collected

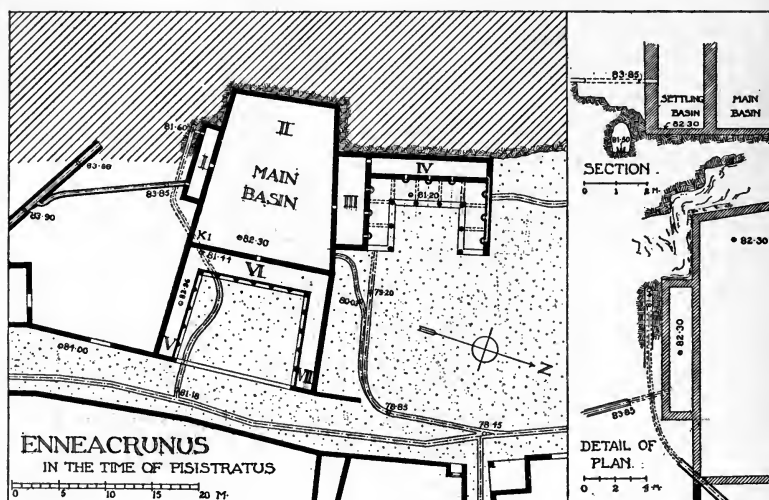


FIGURE 14. — ENNEACRUNUS.

subterranean water, both that which came from small springs and the surface percolations which find their way to a certain level in natural reservoirs and there accumulate.¹

Whether the water poured immediately from the conduit into the larger chambers of the fountain is a question definitely answered in the case of the Enneacrunus. Like the ancient

¹ "Gerade wie die athenische nimmt auch die megarische Wasserleitung keine Rücksicht auf die Flussläufe in den Ebenen. Es ist das verständlich weil die Stollen kein Flusswasser aufnehmen, sondern nur das Grundwasser sammeln sollten, für dessen Höhe die Flussläufe fast ohne Bedeutung sind. Diese sind vielmehr fast das ganze Jahr hindurch ohne Wasser und bilden nur Abflussrinnen bei starken und längeren Regengüssen." (Gräber, *l.c.* p. 59.) These conduits therefore for long stretches of their upper courses had to be underground, and like the earlier system they continued underground to the outlet.

cisterns on the Aspis at Argos (*B.C.H.* XXXI, p. 152), the Enneacrunus had a settling basin (Fig. 14, I, the plan is reproduced from Gräber's study) which first received the water. That its purpose was to prevent the heavier particles of sediment from getting into the large reservoir II is established by the existence of the drain which extends its full length. This drain, to have emptied II, need have reached only to K 1, but the prolongation of it indicates that it must have served the special purpose of carrying off the contents of I without disturbing the water in II. The operation was as follows. All water poured into I cleared itself in passing the length of that reservoir to the inlet into II, and thence flowed to the spouts and the basin where it could be drawn. When it was necessary to clean the settling cistern, the water must have been diverted by means of some channel to II, and on occasion must even have passed by that reservoir to either the spouts or the draw-basin. Of such a channel a bit is perhaps preserved in a heavy block of which one face is stuccoed (Gräber, *l.c.* Fig. 32). When the water poured directly into II, it was possible to empty I, clean it completely and quickly with the help of the drain, plug the drain holes and turn the water again into it. The obvious advantage of this device was that the supply need never be interrupted, and that much of the sediment could be kept from the great reservoirs where its removal meant more work. When the pipe line in the conduit was cleaned (Gräber, *l.c.* p. 24) such a cistern must have been of especial service.

The earlier fountain of Theagenes at Megara seems to have been similarly equipped. The plan (Fig. 15 = *Ath. Mitt.* XXV, pl. 8, with modifications) shows that a channel ran along the west side, presumably from north to south, at the height of the sockle. It is conjectured that this was a drain from a settling basin rather than a means of carrying fresh water to a fountain of spouts which normally is arranged to provide for an overflow from the reservoirs and ought not to tap the supply before it reaches them. The Greek channel on the east face of Glauce (PLATE III, Fig. 3) would at first sight seem to have served a similar purpose and to have led to the tunnel beneath the platform and thence to the fountain drain. The levels, however,

show that the water ran the other way, and that the tunnel was merely cut through the channel which carried water from the front, probably excess, to some cistern behind the fountain.

The Corinthian fountain helps in the interpretation of the Megarian. The ground plan of the latter (*Ath. Mitt.* XXV, pl. 8) shows two reservoirs, a large one at the back and a narrow one in front, from which the water was taken. From

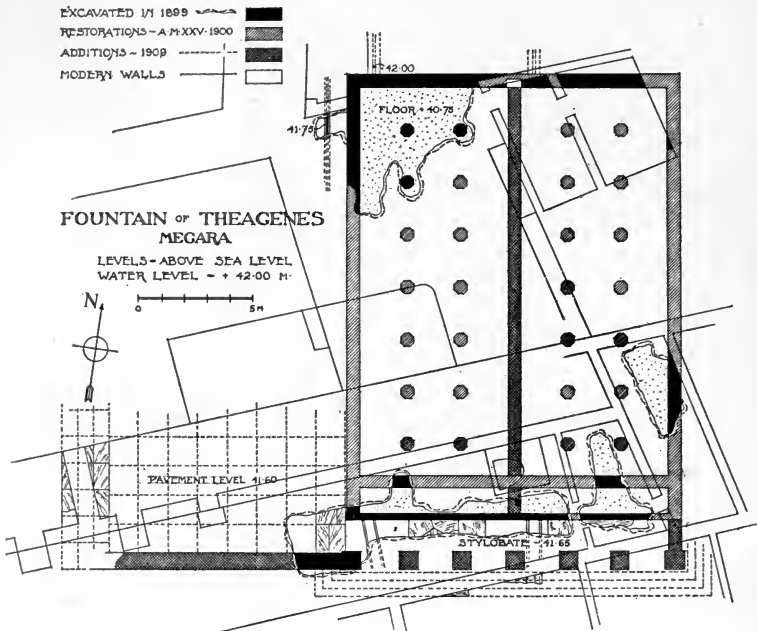


FIGURE 15. — FOUNTAIN OF THEAGENES.

the latter, two drains, one at the east end, the other just beyond the middle, seem to have converged to a common point. The extravagance of two drains from the same reservoir raises the suspicion that it was really not a single basin. The trench unfortunately has been filled in, but the plan shows a piece of a block just to the left of the second drain, and this may have belonged to a short wall which lay exactly in the major axis of the building (Fig. 15), and would consequently have divided the narrow reservoir into two equal parts. Each of these would then have a drain. On this probability hinges yet another,

namely that the octagonal shafts in the major axis should be placed on a low solid wall of the same height as the partition wall between the front and back reservoirs. This conjectured division, which excavation could readily test, would have made it possible to fill and empty the fountain one half at a time — a great advantage. If the plan in the publication is correct, the cleaning of the reservoirs meant that for a period of time no water was available. If the conjecture is accepted, then the further assumption must be made that there was a channel to carry water to the right half when the left was empty. The arrangement of two independent systems under one roof is illustrated by the Corinthian fountain.

Glauce was indebted to the Megarian system for an important detail which it modified. The solid wall between the front and back reservoirs is confined to two of the four large chambers (II and III) in Glauce, but the upper course, which extends across the other two chambers, completed an interior stylobate for shafts and pilasters (Fig. 11). The excavators at Megara found fragments of half columns which occupied a corresponding position. The origin of this wall, which became a feature in fountain construction, continues obscure, unless it can be proved that the narrow front reservoir might be full, while a part of the large reservoir behind was empty.

There is evidence that the Megarian, like the Corinthian fountain, had a portico. On the plan of the former, 1.75 m. in front of and in line with the west wall, one sees a block, 0.05 m. below the level of the platform. This may mark (*Ath. Mitt. l.c.* p. 32) the position of a pilaster in a row of columns along the outer edge which brought the front of the building into line with an adjoining one. Two blocks of the steps are to be seen embedded in the basement walls of the houses, where they serve the modest purpose of shelves.

The restoration of the roof starts with the fact that a remarkable number of columns (*κρήνην . . . ἐς τὸ πλῆθος τῶν κιδόνων θέας ἀξίαν*)¹ supported it. This implies a ceiling of stone slabs like that of the city fountain of Pergamon (*Ath. Mitt.* XXVII, p. 38). The height of the ceiling is known (5.50 m.), which is approximately the height in Glauce, where the measurements

¹ Paus. I, 40. 1.

vary from 5.45 m. (IV) to 5.58 m. (I) at the front, to 5.35 m. (IV) at the back. In the centre of the back wall of the Megarian fountain, 4.62 m. above the floor, is a rectangular hole 0.85 m. wide, 0.45 m. high, and 0.35 m. deep, and at the back of this is a block of poros; the rest of the wall is composed of hard blue limestone. The position of this hole at the end of the central row of columns indicates that it received a beam surmounting the columns. Upon this beam would have rested the cross beams, 2.33 m. long and 0.43 m. thick, which reached across to the octagonal columns and supported the stone ceiling. Only by such a restoration as this does it seem possible to explain the course, 0.43 m. high, which lies above the beam hole. The columns in the major axis were shorter and perhaps thicker than the others (0.50 m.), judging from the width of the beam hole (0.85 m.). Whether there was a gable above the ceiling is uncertain.

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UNPUBLISHED INSCRIPTIONS FROM LATIUM¹

1. On the upper part of a marble altar; now hollowed out as a receptacle for chicken feed, in a house in via della Fontana, No. 12, Palestrina:

FORTVNAE // N . VIII /
PRIMIGENIAE

2. A small marble basis, now on the steps leading to the lower level of the Barberini gardens, Palestrina. The lettering seems to date from the third century A.D.

I O ▼ V I
O P T I M O
L r A P O N I V S
M I T H E R E S
C V M P A T R E
D D

Aponius is a rare nomen in Praeneste and does not appear among the *pigna* inscriptions. An Aponius appears as a quaestor in the list of municipal officials given in *C.I.L.* XIV, 2966. There is one other Aponius mentioned in *C.I.L.* XIV, from Ostia, 256, 91.

3. A travertine *pigna* from Palestrina. Height, 0.24 m. The inscription is on the shoulder of the *pigna*. Now in the Johns Hopkins University Museum, Baltimore.

A L B I N I V S 0.01 m.

¹ The inscriptions here published were gathered while I was Fellow in Classical Archaeology in the American School of Classical Studies in Rome in 1906-1907. I take this opportunity to thank Professor Richard Norton and Director Jesse B. Carter for their courtesy and assistance to me during my year of residence in Rome.

4. A travertine pigna from Palestrina. Height, 0.38 m. Leaf pattern on throat and shoulder of the pigna. The inscription is on the lower part of the cone. Now in possession of Professor H. L. Wilson, Johns Hopkins University, Baltimore.

C A M E L I A 0.02 m.

5. A travertine pigna from Palestrina. The inscription is on the cone. Now in private possession in Palestrina.

L · C A R M O P · S

6. A large fragment of marble in the garden of Signor Sbardella, Palestrina. The lettering is good, apparently of the first century A.D.

<i>cor</i>	\ N I F I C	0.07 m.
<i>co</i>	R N I F I C	0.04½ m.
<i>c</i>	A E C I L I	0.04 m.

7. A broken piece of marble from Palestrina. Now in private possession there. The lettering is late.

C · C R I S A R I O
D ~~X~~ · L · T O D E I O
V · F · P · S

An X is cut across the E in line 2, but if meant to erase the E, the method is unusual.

8. A travertine pigna from Palestrina. Height, 0.33 m. The inscription is on the base. Now in the Johns Hopkins University Museum, Baltimore.

C · F A B I V S 0.02 m.

9. A travertine pigna from Palestrina. Height 0.23 m. The inscription is on the cone. Now in possession of Professor J. L. Moore, Vassar College, Poughkeepsie, N.Y.

Both the cutting and the form of the name make it almost certain that the inscription is not ancient.

G · I R E N I A · P · S

10. Part of a marble statuary base, with one foot of the statue still remaining. Reported found on the Via Praenestina, two miles from Palestrina. Now in the Johns Hopkins University Museum, Baltimore.

The inscription seems to be modern.

IVLIA MAMEA · M · TIT

11. A travertine pigna from Palestrina. Height, 0.27 m. The inscription is on the base. Now in possession of Professor J. L. Moore, Vassar College.

L · C · LIBERTI

12. A travertine pigna from Palestrina. Height, 0.40 m. The inscription is on the cone and is probably not ancient. Now in private possession in Palestrina.

D · M A G N I V S

13. A travertine pigna cone from Palestrina. Height, 0.18 m. Now in the Johns Hopkins University Museum, Baltimore. The inscription is probably not ancient.

M · M A S S E I S · V

14. A travertine pigna from Palestrina, with inscription on the cone. Height, 0.22 m. Now in possession of Miss Helen Tanzer, New York City.

M A I O · P E T R O N I A · M · F

15. A fragment of limestone set into the wall of the municipal building, Palestrina.

L · P H I L I P P V S

The second line of the inscription shows the top half only of letters which appear to be DIII DVO. The first stroke of H in *Philippus* is not cut on the stone.

16. A small piece of travertine moulding set in the wall of a house in vicolo dell' Arco, No. 11, Palestrina. The cutting seems ancient, but the letters find no explanation.

P R I O F I E P

17. A travertine pigna base from Palestrina. Diameter, 0.24 m. Now in the Johns Hopkins University Museum, Baltimore. The L with oblique bottom stroke and the square open loop of P are clearly marked.

l · P V l l · N · F 0.01 m.

18. A travertine pigna from Palestrina, with the inscription on the throat of the pigna. Height, 0.40 m. Now in the Johns Hopkins University Museum, Baltimore.

Q · PVIVS · I · F 0.05 m.

The open loop of P and acute-angled V should be noticed.

19. A large piece of marble (0.55 m. × 0.52 m.) with a rough band at the bottom, showing that it was set in a groove of some sort. The inscription was on at least three blocks of marble. This block is squared on the left side, but broken on part of the right side. Now in possession of Cav. G. E. Mora, Municipal Secretary of Castel Gandolfo.

an T O N I V 0.14 m.

S A B I N 0.12 m.

A E T O R 0.09 m.

The left half of the crossbar on the T and the last stroke of the V in the first line do not appear on the stone. The inscription shows round O, square N, I longa, and T with a long crossbar. The lettering is of the finest monumental style.

20. A large marble cippus in front of palazzo Rospigliosi in Zagarolo.

S I L I A E · E A R I N E

V I X · A N N · X X I X

D I E B · V I

M A T E R

P I E N T I S S I M A

21. A marble tablet (0.47 × 0.30 m.) from Palestrina. Reported found at Castiglione. Now in private possession in Palestrina. The lettering is late.

M · S T A T I V S · M · L I B 0.04 m.

G L A P H Y R · E T 0.03 m.

P O M P E I A C N · L · F E L I C V L A 0.03 m.

F E C E R V N T · S I B I · E T · L I B E R T I S 0.02 m.

P O S T E R I S Q · E O R V M · Q V A M R E M 0.02 m.

I N · F A M I L I A · N O M I N I S · S V I · E S S E 0.02 m.

D E S I N A R V N T 0.01 m.

The form here is somewhat different from that in any of the *iura sepulcrorum* given in Bruns, *Fontes* (6th ed.), chap. XI, p. 334 ff. It is difficult to supply the proper antecedent for *quam rem*, which is perhaps *aedicula*, *ara*, or *area*.

The earlier forms of the verb are *ne . . . exeat*, or *ne . . . perveniat*, and the form here used, *esse desinarunt*, is worthy of notice. DESINARVNT seems to be a mistake for DES(T)INARVNT. From Ostia, *C.I.L.* XIV, 1452, comes an inscription which should be mentioned in connection with this one: *libertis · libertabus | posteris · que · eorum | ex · familia · nominis mei | etc.*

22. A travertine pigna from Palestrina, with inscription on the cone. Now in private possession in Palestrina. Doubtless modern.

T · V R I F I T E

23. A travertine pigna from Palestrina. Height, 0.19 m. The inscription is on the base. Now in my possession. The inscription is probably not ancient.

T · V I B V L I Æ

24. A travertine pigna from Palestrina. Now No. 21 in the collection of the new Municipal Museum in Palestrina.

M A I O · V O ^{lu} M I N I A

The index of *C.I.L.* XIV shows both Volumnius and Volumnia from Praeneste.

25. A marble base in a house in via della Fontana, No. 12, Palestrina. The inscription is not ancient.

S · I · S · + · S B R
M E N T E · P V R A · D E O .

26. A fragment of marble set into the wall at the entrance of the Fiumara house, Palestrina.

I A
· I V S
V R I

27. The lower part of a broken marble cippus set into the wall of the municipal building, Palestrina.

S V A I
N T
V I V A S

One letter appears at the top of the cippus over SV in the second line, which seems to be a G. The inscription is in three pieces.

28. A travertine pigna base from Palestrina. Now No. 22 in the collection of the new Municipal Museum in Palestrina.

O R T V

The last stroke of the V does not appear on the stone.

29. A small piece of marble from Palestrina. Now in the garden house of the lower Barberini palace in Palestrina.

V E L I B
A B
W
Q

Marble fragments lying in the inclosure of the new Municipal Museum in Palestrina.

30.	31.	32.
C O C I A	A L A	V M · Q
		X V I I I I · S I I
33.	34.	
I O S · I I I -	G X X	

Brick stamps lying in the inclosure of the new Municipal Museum in Palestrina.

35.	36.
C A E C I	L I C I N I L F
	C C E S S I A N I
37. L I C I N I L · F	In Municipal Museum, No. 3.
C C E S S I A N	
38. C · P R O P I	In Municipal Museum, No. 4.
F E L I C	

39. C A L L I S T V S In Municipal Museum, No. 23.
C O C C E I N E R V A E

40. T V D I E P R M Æ

The lower half of the first four letters is broken off the brick.

41. H E R M E + S

42. E B V I A N O I
P R D O M I V C . E

Nos. 41 and 42 are now in the possession of Signor Tommasi, Palestrina.

Inscriptions on the bottoms of lamps from Le Tende, near Palestrina.

43. L . F A / R I C N I

44. L . M A D I E C

45. C . O P P I . P . F

Nos. 43-45 are now in Johns Hopkins University Museum, Baltimore.

CORRECTIONS FOR THE *C.I.L.*

C.I.L. XIV, 2835, should read:

T I . C L A V D I O
A V G . L . P H O E B O
A N T O N I A N O
S I B I . E T . L I B E R T I S
L I B E R T A B V S Q V E

The inscription is now wholly above ground.

C.I.L. XIV, 2849: now No. 7 in the Palestrina Municipal Museum.

C.I.L. XIV, 2851: now No. 19 in the Palestrina Municipal Museum.

C.I.L. XIV, 2857: now in the courtyard of the Seminario, Palestrina.

C.I.L. XIV, 2872: purchased by me in Palestrina, and given to the Municipal Museum, where it now is.

C.I.L. XIV, 2879: a small travertine pigna basis, now No. 20 in the Palestrina Municipal Museum. The inscription should read:

.... G · M A G · C O I R
 N D E R · P L A V T I V S · L · M ·
 N V S · C O R D I V S · A · S · F · P

The letter P in lines 2 and 3 has an open loop, and the points are all triangular.

C.I.L. XIV, 2886: now in the yard of the municipal building, Palestrina.

C.I.L. XIV, 2889: now in the vestibule of the municipal building, Palestrina.

Line 4 should read: CYPAERVS

Line 7 should read: CYPAERVS · FILIVS

C.I.L. XIV, 2890. The size of the block, which is probably an altar, is 0.64 m. × 0.46 m. × 0.25 m. It is now No. 35 in the Palestrina Municipal Museum.

C. in line 1 should be C.

C.I.L. XIV, 2907: on the front of the cippus are two figures supporting a half wreath which hangs between two small capitals adorned with cornucopiae.

Line 2 should read: QVINTVS

C.I.L. XIV, 2930: now in the wall of the municipal building, Palestrina.

Line 4 should read: (cut to be made)

C.I.L. XIV, 2921: now in the garden of the municipal building, Palestrina.

C.I.L. XIV, 2946: now No. 34 in the Palestrina Municipal Museum.

C.I.L. XIV, 2978: now set into the wall of the municipal building, Palestrina.

Line 6 should read: LAV, etc.

C.I.L. XIV, 2997: now on the steps in the lower Barberini gardens, Palestrina.

C.I.L. XIV, 3002: in lines 5, 6, and 8 the letter P has the open loop.

C.I.L. XIV, 3016: now set in the wall in the entrance to cathedral of S. Agapito, Palestrina.

C.I.L. XIV, 3031: line 6, LIBERTAS should read LIBERTAS.

C.I.L. XIV, 3336: now set into the wall of the municipal building, Palestrina.

C.I.L. XIV, 3344: the size of the block of marble is 0.33 m. \times 0.27 m. \times 0.07 m. The letters are 0.02 m. in height, and very poorly cut and irregular. Now No. 13 in the Palestrina Municipal Museum.

In line 1, DIS should read DIS.

C.I.L. XIV, 3354, 3358, 3360, 3387, 3390, 3407, 3411: all now set into the wall of the municipal building, Palestrina.

C.I.L. XIV, 3415: now set in the wall at the entrance to the cathedral of S. Agapito, Palestrina. Throughout the inscription A should be A, and in line 1 NVNCPABITVR should read NVNCPABIT/R.

C.I.L. XIV, 3421 *a* and *c*, 3424, 3425, 3427, 3427 *a*, 3429, 3430: now set into the wall at the entrance to the cathedral of S. Agapito, Palestrina.

Not. Scav. 1903, p. 580. *a*, *b*, and *c* are now Nos. 31, 28, and 29 respectively in the Palestrina Municipal Museum. The first line of *c* should read DIVINCIA.

Not. Scav. 1903, p. 580 (*Röm. Mitt.* XIX, 1904, p. 151): now No. 27 in the Palestrina Municipal Museum.

Line 3 should read: L · NERIANVS · TERTIVS · PRAECO · APPARITO *r*. All P's have the open loop.

Line 6 should read: FRATRES. The stone is in ten fragments.

MISPRINTS NOTED IN THE *C.I.L.*

In *C.I.L.* XIV, 2836 *a*, for Petrini p. 316, read Petrini p. 360; *ibid.* 3339, for Petrini p. 35, read Petrini p. 358; *ibid.* 3351, for Petrini p. 174, read Petrini p. 374; *ibid.* 3373, for Petrini n. 5, read Petrini n. 55; *ibid.* 3384, for Petrini n. 6, read Petrini n. 86; *ibid.* 3390 for Petrini n. 47, read Petrini n. 77; *ibid.* 3427, for Petrini n. 5, read Petrini n. 85; *ibid.* 261*, for Cecconi p. 69 read Cecconi p. 60.

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GREEK INSCRIPTIONS FROM THE NEGB

OF the following inscriptions all but three were discovered in a necropolis north of Ruḥêbeh on the second and third of June, 1905. The Antipater inscription and the two shorter ones were found a week later at Beersheba. Ruḥêbeh is, no doubt, identical with the Rehoboth of Gen. xxvi, 22, where Isaac is said to have dug a well. Possibly the town figures under the name of Rubuta in the Amarna correspondence (182, 183, and 239). It was known to Josephus as Ρωβωθ (*Ant.* I, 18, 2). In the Graeco-Roman period its name seems to have been Robatha. According to the *Notitia dignitatum*, 72, 11 and 73, 27, there was a garrison of *equites sagittarii indigenae* at Robatha; and Ροβαθα likewise occurs in the *Rescript of Beersheba* (No. 8). The loss of the guttural, suggested as a difficulty by Clermont Ganneau (*Revue Biblique*, 1896, p. 426), is no more serious than in Ρωβωθ (Josephus, *l.c.* and Eusebius, *Onom.* 142, 14). In either case it was undoubtedly due to the tendency to weaken and slur over this guttural in pronunciation. Why the place should be looked for east of the Arabah is not apparent, when Thamara, Praesidion, Eiseiba, and Moa, are certainly in the Negeb.

The first of the inscriptions was found by Mr. John Whiting, of Jerusalem, who accompanied our party. Squeezes and copies were made by myself and my students in the American School for Oriental Study and Research in Palestine during the year 1904-1905, Dr. A. T. Olmstead, Mr. B. B. Charles, and Mr. J. E. Wrench, and the squeezes are now at Cornell University. The small limestone steles on which they were cut ranged in height from six inches to two feet. All were left *in situ* except two that were handed over to the kaim-maḵam of Beersheba, and the discovery was reported to him and to the mutasarrif of Jerusalem. In addition to those given

below, a number of others were copied which are not published here, as they had already been seen by members of the Dominican School in Jerusalem and published in the *Comptes Rendus* of the *Académie des Inscriptions et Belles-Lettres*, 1904, pp. 298–305, and in *Revue Biblique*, 1905, pp. 245–275. The texts have been transcribed from the impressions and translated by Mr. Charles; the bracketed notes on the chronology and other matters are mine.

1. A rectangular stele. Letters $1\frac{1}{2}$ in. high. Lines separated by ruling.

✠ Ἀνεπεί η̅ Μαρία Ἡννης ἐν μηνὶ Δίον κδ' ινδ. α' ἔτους νοζ' ✠

"Mary, daughter of Anna, died on the 24th of the month Dios of the year 477, in the first indiction."

"Ἡννης, a late form of *Avva*. Cf. *Ἐννη* in Dussaud et Macler, *Voyage archéologique au Sâfâ et dans le Djebel ed-Druz*, No. 83.

[The era used at Robatha-Ruhêbeh in the period when these epitaphs were written was that of the province of Arabia, beginning on the 22d of March, 106 A.D. Indiction I began Sept. 1, 582 A.D. The 24th of Dios, 477, was the 15th of November 582 A.D.]

2. Stele with circular top and rectangular base. Part of base with inscription broken off. Letters from $1\frac{1}{2}$ to 2 in. high. Inscription around circumference of top:

✠ Μετὶ Ξανθ(ικοῦ) ἐκ τοῦ ἔτους ννα'

"In the month of Xanthikos of the year 451."

Inscription on base:

✠ Ἀνεπ(α'ή) ἐ Μα[ρία] Μαρίας

"Mary, daughter of Mary, died."

[Xanthikos 451 = 22 March to 20 April, 556 A.D.]

3. Rectangular base of a decapitated stele. Letters 1 to 2 in. high.

✠ Ἀνεπεί Χάρετος Ζωναίνου μηνὶ Δεσίον ι' ινδικτιῶνος γ'

"Charitos, son of Zonainos, died on the 10th of the month Daisios, in the third indiction."

With *Χαρετός* cf. *Χαρήτου* in Dussaud et Macler, *l.c.* No. 96. *Zonainos* appears in the form *Zonivou* on one of the steles published in *Comptes Rendus*, *l.c.*

[The 10th Daisios would be the 30th May. The use of the indiction only without the year of the era occurs not seldom on these funeral steles.]

4. Letters well cut, from $\frac{3}{4}$ to $1\frac{1}{4}$ in. high.

✠ Ἀναπάε ὁ μακάριος Στέφ(ανος) Φελουμήνη ✠
μη(νὶ) καλανδῶν κθ' ἔτους υρε'.

"Blessed Stephen, son of Philoumene, died on the 29th of Kalends in the year 495."

Φελουμήνη must be for Φιλουμένης, unless, indeed, it be a still greater slip and meant for Φιλουμενοῦ. If intended for Φιλουμένης, we must explain it either as the inadvertent omission of *ς*, or as a modern Greek form of genitive without *ς*, coming into use at this early period.

[This is the only inscription known to me where the term Kalends is used as the name for the first month of the year. According to the *Hemerologium* taken from a copy of the Florence manuscript of Theon's commentary on Ptolemy and published apparently from the papers of Sainte-Croix in *Histoire de l'Académie Royale des Inscriptions et Belles-Lettres*, XLVII, 1809, pp. 66 ff., the Arabic year began, after the five epagomenae, with the month Xanthikos. It is not impossible that a new year's festival was celebrated in Palestina III at this time like the *ἐορτὴ τῶν Καλανδῶν*, against whose orgiastic character Asterius preached in Pontus and which Libanius described (cf. Ideler, *Handbuch d. mathematischen und technischen Chronologie*, 1826, II, 334), especially as it came at the vernal equinox. The 29th Kalends of the year 495 is, no doubt, the 19th of April, 600 A.D.]

5. Letters from $\frac{3}{4}$ to $1\frac{1}{2}$ in. high. Inscription around circumference of top :

✠ Ἀνεπάε ὁ μακάριος Βίκτωρ

On the lower part of top and on base :

✠ ἐμὲνὶ Λόου ς κβ' ς ἰνδ ς γ' τοῦ ἔτους υνς'

"Blessed Victor died on the 22d of the month Loos, third indiction, year 450."

[The 22d Loos, indiction III, 450 = 10th August, 555. The sign ς has by mistake come before ' rather than after it in the numerals indicating the year.]

6. A stele with circular top and rectangular base. No inscription on top. Letters on base clearly cut but not of uniform size. Height $\frac{5}{8}$ to $1\frac{3}{4}$ in.

✠ Ἀναπάε ἡ μακαρ(ία) Ἀζονε (ἐ)ν μηνὶ
Ἀρτεμεσίου κέ ἰνδ(ικτιῶνος) σ' ἔτους νηγ'

"Blessed Azone died on the 25th of the month Artemisios, sixth indiction, year 483."

Ἀζονη for Ἀζωνή.

[25 Artemisios, indiction VI, 483 = 15 May, 588.]

7. Letters from 1 to $1\frac{3}{4}$ in. high.

✠ ἐκυμ(ήθη) ἡ μακ(αρία) Μαρία μη(νὶ)
Ἀρτεμυσίου α' ἰνδικτιῶνος ι'.

"Blessed Mary died on the first of the month Artemisios, in the tenth indiction."

ἐκυμ for ἐκοιμ.

[1 Artemisios = 21 April.]

8. Letters from $1\frac{1}{2}$ to $2\frac{1}{2}$ in. high. Deeply cut.

✠ Ἀζονε νῆα ἤθανα.

Perhaps the engraver meant to write Ἀζωνή νέα ἔθανε, "Young Azone has died."

9. Stele with circular top and rectangular base. Letters from $1\frac{1}{8}$ to $2\frac{1}{2}$ in. high.

Inscription around the top:

Ἀβραμίου Ν α

On lower part of top and on base:

ἀνεπά(η) Ἀβ(ράμους) το(ῦ) μηνὸς Ἀρτημι(σίου)

"(The tomb) of Abraham, son of N. Abraham died in the month of Artemisios."

[Artemisios = 21 April to 20 May.]

10. Letters from $\frac{7}{8}$ to $1\frac{3}{4}$ in. high. Circular top badly weathered in places. Inscription around top:

Ἀνεπά(ε) . . . μ . . . ν.

On the base:

✠ ἰνδικτιῶνος γ' ἔτ(ους) νμ θ'

" . . . died in the third indiction, year 449."

[Indiction III began 1 September, 554 A.D.; the year 449, 22 March, 554.]

11. The circular top of a stele. Letters from $1\frac{1}{2}$ to $2\frac{1}{4}$ in. high.

Θεμος Ἀβδερес Ζε.

"Thaimos, son of Abderes."

Θεμος for Θαῖμος. Ἀβδερес evidently a Semitic name.

12. Letters from $1\frac{1}{4}$ to 2 in. high.

✠ Ἀναπ(άε) Σεργίου.

"The child of Sergios has died."

13. Letters from $\frac{1}{2}$ to 1 in. high.

✠ Ἰωάννου Ἀλαφίρ.

"Alaphir, son of John."

For Ἀλαφίρ, cf. Dusseau et Macler, *l. c.*, Nos. 25 b and 121 b.
רפאל.

14. A fragment. Letters from $1\frac{1}{4}$ to $2\frac{1}{4}$ in.

The upper line seems to contain the letters *κουε* and the second line *ευλα*. Perhaps the original reading was *μηνι Ξανθικου ε' ετ(ους) υλα'*.

"On the fifth of the month Xanthikos, year 431."

[That would be the 26th of March, 536 A.D.]

15. A badly weathered base, 6×11 in. Letters $\frac{3}{4}$ to $1\frac{1}{4}$ in. high.

✠ Ἀνεπάε μην(νι) Περιτίου ετους νοά ✠

" . . . died in the month of Peritios of the year 471."

[Peritios, 471 = 16 January to 14 February, 577 A.D.]

16. A square stele, $12 \times 12\frac{1}{2}$ in. Letters from $\frac{7}{8}$ to $1\frac{3}{4}$ in. high.

Ἀνεπάη ε μακαρία Ἀναστασία

"Blessed Anastasia died."

17. The upper part of the circular top of a stele. Letters from $\frac{7}{8}$ to $1\frac{1}{2}$ in. high.

Ἀναπάη μακ(αρία) Μαρία μηνι Ἀ

"Blessed Mary died in the month of A

[Artemisios, Appelaeos, or Andynaeos.]

18. Stele with small circular top. Inscriptions on base. Letters $\frac{3}{4}$ to $1\frac{3}{8}$ in. high.

✠ Ἀνεπάε μακαρία Μαρία ✠

"Blessed Mary died."

19. A small stele; letters from $1\frac{1}{4}$ to $1\frac{1}{2}$ in., well cut.

✠ Σαουδ

A Semitic name found occasionally at the present day among Syrians. For names from the same root, cf. Johns, *Assyrian Deeds and Documents*, No. 175, pp. 402 f., and Lidzbarski, *Nordsemitische Epigraphik*, I, p. 380.

20. Fragment of a circle containing the letters Moa and κτωρ. The latter is doubtless Βίκτωρ.

[Was Victor a native of Moa (Μωα), *Madeba Map*, 88, *Rescript of Beersheba*, 13?]

21. Another fragment containing the letters:

Αουα

At Beersheba three inscriptions were found:

1. A fragment containing the letters

ΒΙ [Probably βικτωρ, Victor.]

2. A piece of limestone, six in. square. Badly weathered. Letters from $\frac{3}{4}$ to 1 in. high. What is visible is:

Β Ο Η Θ Ε
Ν Ο V Κ V Ρ Ι Ε
Ε Ι Ο V Κ Α Ι Ν Η
V Π Ε

This may be restored conjecturally as follows:

Βοηθε [Στεφα]νον Κυριε μ(ηνι) (Δε)σιον
κα ιν(δ)η ετους υπε.

"Lord, help Stephen! The 21st of the month Daisios, indiction VIII, year 485."

[There is no doubt that the era of the Provincia Arabia is used. Indiction VIII began Sept. 1, 589 A.D. The 21st Daisios, 485, fell on the 10th of July, 590 A.D. E. Schwartz, "Die Aeren von Gerasa und Eleutheropolis," in *Nachrichten d. k. Ges. d. Wiss. zu Göttingen*, 1906, p. 390, calls attention to the fact

that, in the hitherto published inscriptions from Beersheba, the era of Eleutheropolis, beginning Jan. 1, 200 A.D., is more frequently used than the provincial era.]

3. The third inscription (Fig. 1) was found at the home of a zaptie named Mustafa, where squeezes and photographs were

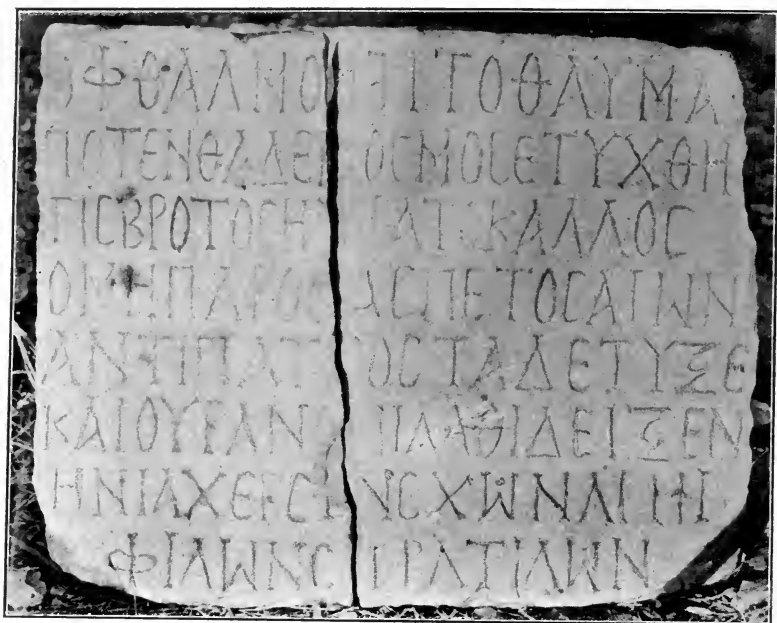


FIGURE 1. — INSCRIPTION FROM BEERSHEBA.

taken. It is engraved on a slab of marble now broken into two pieces. The original dimensions were 15 × 21 in.

Ὀφθαλμοὶ, τί τὸ θαῦμα; πότ' ἐνθάδε κόσμος ἐτύχθη;
 Τίς βροτὸς ἡῦρα τὸ κάλλος ὃ μὴ πάρος ἄσπετος αἰών;
 Ἀντίπατρος τὰδ' ἔτυξε καὶ Οὐρανὸν ἔλαθι δαΐξεν,
 Ἦνία χέρσιν ἔχων ἀρηφίλων στρατιῶων.

This inscription consists of four lines of hexameter verse. The most troublesome point is the word *ἔλαθι*. In form this can only be an imperative, and if translated as such must be parenthetical, a prayer to Antipater as a deified hero.

"O eyes, what marvel! When was order established here?

What mortal found the thing of beauty which, before, an infinite extent of time had not discovered?

Antipater accomplished this, and (be gracious, O deified hero!)
pointed the way to heaven,
Holding in his hands for Ares the reins of his soldiers."

Or did the writer, doubtless a Semite, understand *ἱλαθι* as an adjective meaning "gracious," so that we should translate "Antipater accomplished this and made heaven gracious"?

Dr. G. W. Elderkin points out as a most remarkable fact that *ὀφθαλμοί, τί τὸ θαῦμα; πόθεν* is found in Nonnus, I, 93 and *τί τὸ θαῦμα; πόθεν* in Nonnus, XLVIII, 602; and that these are the only passages in the whole range of epic literature where such an expression occurs. These correspond very closely with the *ὀφθαλμοί, τί τὸ θαῦμα; πότ'* of our inscription. As there can be no question of one influencing the other, we may have here a common borrowing from an unknown original of the Hellenistic age. Dr. A. T. Olmstead has suggested that the inscription was set up in honor of Antipater, father of Herod the Great. The character of the writing would lead one to expect a later period, yet all the forms would doubtless allow a date as early as the first century B.C. An Antipater in Idumaea, not far from Gaza, where Herod was born, and the only Antipater in that region, so far as we know, to whom such a eulogy could apply, is likely to be none other than Herod's father.

[The Antipater inscription is not an epitaph, but a poem engraved on a block of marble. It is the only inscription of its kind found in Syria. This gives it a unique interest. It was probably intended to celebrate the dedication of some notable monument in Beersheba. I would translate the four hexameters as follows:

"Eyes, what marvel is this! Such an ornament, how was it made here?

What mortal devised this beautiful thing the world never saw before?

Antipater made it, and shewed how Uranus (gracious be he!) Holds in his hands the reins of the armies dear to Mars."

The poet expresses his amazement that such an ornament (*κόσμος*), such a thing of beauty (*κάλλος*), as the wide world (*ἄσπετος αἰών*) had never before seen, could have been made in Beersheba. The forms *ἐτύχθη* and *ἔτυξε* (for *ἔτευξε*) from *τεύχω* would make it possible to think of a work of either wood

or metal; but the last lines render it probable that it was an object of art cast in metal, possibly bronze. One naturally thinks of the famous masterpieces in Gaza described by Choriokios (ed. Boissonade, pp. 149 ff.; cf. Stark, *Gaza und die philistäische Küste*, 1852, pp. 600 ff.). After the mention of Uranus, Ἰλαθι is quite in order. It is not the deified hero, as Mr. Charles thinks, but the god who is addressed in a manner of which many examples can be quoted. Uranus was probably identified in Beersheba with Baal Shamem (בעלשם) and he with Dhu'l Sharra — Dusares. The term ἀρηίφιλος is no doubt, as Professor Fowler points out in a letter, the common Homeric epithet of warriors "dear to Ares"; but it may have been chosen in this connection because the planet Mars was the special astral manifestation of Dusares. On this, however, no stress should be laid. Antipater's masterpiece may have represented Uranus-Dusares, the heaven-god, driving a chariot of war and leading the warlike hosts. The name of the artist whose fame the poet desired to immortalize was sufficiently common in all parts of the Hellenistic world, and the grandfather, as well as father, of Herod had borne it in Idumaea. There does not seem to be anything in the inscription clearly indicating the nationality of the poet. It appears to me certain that there is one grammatical error (ἔχων for ἔχοντα). But it is not necessary to resort to the assumption that the poet's vernacular was the Aramaic, in which the participle would be the same whether Antipater or Uranus were in the writer's mind. Even a Greek may have sacrificed grammar to metre or to the dominating thought of the divine being which wrung from him the Ἰλαθι.

As to the date, we should have a clew if we could be certain that the poet was familiar with Nonnus. According to Suidas (s.v.), Nonnus wrote his *Dionysiaca* ca. 410 A.D., and Proclus, who was born in 412 A.D., quotes his work. It is not unnatural to suppose that copies of the great epic spread to Ashkelon, Gaza, and the Greek cities of the Negeb. If a pagan author, living in Panopolis, Egypt, could write such a poem in the fifth century, there is no reason why a modest cultivator of the muses in Beersheba, still adhering to his ancestral worship, should not have borrowed from it a fine phrase. The peculiar

expression ἄσπετος αἰών also looks as if it were borrowed, but I have not found it in perusing the epic of Nonnus. The writer seems to be surprised that such a unique object of art should have been produced in Beersheba (ἐνθάδε). This surprise may have been feigned, a literary conceit, if he was a native of the place, or genuine, if he came as a visitor to the city. In either case, he may have been acquainted with the wonderful works in the Agora at Gaza. Unfortunately, we do not know how long they had been there when Chorikios wrote his description in the reign of Justinian. The Antipater inscription may be dated tentatively in the middle of the fifth century A.D. Even if there is no dependence upon Nonnus, it is not likely to be much earlier than the other inscriptions discovered by us in the Negeb.

Professor Fowler suggests the following translation :

"Eyes, what is the wonder which was here made as an ornament? What mortal invented the beauty which endless ages (had) not previously (invented)? Antipater made this and holding in his hands the reins of the armies dear to Ares he pointed (oh, be gracious!) to heaven."

He adds, "I confess that this seems to make Antipater out to be at once a general and an artist, which is not a usual combination, and I do not like the rendering of the line καὶ οὐρανὸν ἔλαθι δέιξεν, but at any rate this does no serious violence to grammar;" and subsequently, "On the whole I think the interrogation mark after θαῦμα is probably right." This involves rendering πότε also as interrogative, not indefinite.

My colleague, Professor J. R. S. Sterrett, offers a somewhat similar rendering, also based on the assumption that "there is no grammatical break in the inscription":

"Eyes, what marvel can it be that ye see here? The universe hath been depicted. What mortal was it who fixed that order which since time began hath not been fixed before? Antipater, who holdeth in his hands the marshalling of warrior hosts — Antipater it was who fashioned it and portrayed in a group the vault of heaven."

He further observes: "Like many works of poetasters of a late day, the lines contain an odd mixture of that which has long been obsolete (ἔλαθι) with what is of recent origin (ἡῦρα and ἔτυξε)"; and "ἔλαθι is a locative from ἔλη."

If such a locative from ἱλῆ actually was used in Greek speech, though I am not aware of its occurrence in extant Greek literature, it would admirably suit my conception of the poem. In my judgment, Antipater, the artist, had set forth, "in a group," Uranus, the heaven-god, holding the reins of a span of horses with the figures of soldiers by the side of them. This is perfectly intelligible, especially in the light of Chorikios' account of the masterpieces in Gaza. But I feel it to be safer to adhere to the reading ἱλαθι and the meaning "be gracious," which suits my interpretation just as well. I find it difficult to visualize a picture of the universe, or set before my mind's eye "the vault of heaven in a group"; and I frankly confess that I cannot quite understand this Antipater who is able to "portray the vault of heaven in a group" or "depict the universe," when he is commander of some troops in Beersheba, or find leisure for creations of this sort, though in charge of an army "dear to Ares."

One thing seems to me certain: Antipater is the artist whose work is celebrated, and not a general whose artistic performances entitle him to more honor than his victories on the battle-field, or a governor whose sycophantic rhymester immortalizes the wealth that paid for the masterpiece rather than the brain that conceived and the hand that executed it. If the grammatical accuracy must needs be saved, it may perhaps be permissible to put the reins in the hand of the artist. He created this ornament, this representation of the cosmic ruler and his army, made this thing of unprecedented beauty, portrayed the heaven-god, Uranus, directed with his genius the host of heaven as a charioteer his span, assigning to each figure its proper place, driving some forward, holding others back. This might be an allusion to the features of the work itself and, at the same time, be thought a graceful, though somewhat far-fetched, compliment to Antipater. But the man who could write $\delta \mu\eta \pi\acute{\alpha}\rho\omicron\varsigma \acute{\alpha}\sigma\pi\epsilon\tau\omicron\varsigma \alpha\acute{\iota}\omega\omicron\nu$ would, in my judgment, be capable, without a drop of Semitic blood in his veins, of writing also $\epsilon\chi\omega\nu$ for $\epsilon\chi\omicron\nu\tau\alpha$, if the metre demanded it.]

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Archaeological
Institute of
America

GENERAL MEETING OF THE ARCHAEOLOGICAL
INSTITUTE OF AMERICA

DECEMBER 28-31, 1909

THE Archaeological Institute of America held its eleventh general meeting for the reading and discussion of papers at Johns Hopkins University, Baltimore, Tuesday, Wednesday, Thursday, and Friday, December 28, 29, 30, and 31, 1909, in conjunction with the annual meeting of the American Philological Association. Four sessions were held for the reading of papers. The abstracts which follow were, with few exceptions, furnished by the authors.

WEDNESDAY, DECEMBER 29. 9.30 A.M.

1. Professor William N. Bates, of the University of Pennsylvania, *Two Labors of Heracles on a Geometric Fibula*.

This paper will be published in full in a later number of the JOURNAL.

2. Professor Campbell Bonner, of the University of Michigan, *The Standard of Artaxerxes at Cunaxa*.

This paper offered a revision, on philological and archaeological grounds, of the interpretation commonly given to the well-known passage in the *Anabasis* (I, 10, 12), where Xenophon describes the standard of Artaxerxes:

καὶ τὸ βασιλεῖον σημεῖον ὁρᾷν ἔφασαν, αἰετόν τινα χρυσοῦν ἐπὶ πέλτῃ ἐπὶ ξύλῳ ἀνατεταμένον.

This description should be translated thus: "a kind of golden eagle on a light shield, raised aloft upon a pole." The writer held that there was no evidence, literary or monumental, independent of the statement of Xenophon, to prove that the royal standard of this period had the device of a golden eagle; whereas Xenophon's expres-

sion "a kind of eagle" betrays some uncertainty. In the Middle and Later Assyrian Empires, which strongly influenced Persian civilization, the royal standards displayed sacred emblems probably derived from the winged symbol of the god Ashur. The symbol of Ashur was modified by the Persians and adopted as the symbol of Ahuramazda, which appears on Persian sculptures closely associated with the person of the king. It was suggested that the "eagle" seen by Xenophon's informants was really some form of the symbol of Ahuramazda used as a royal ensign. Such a device, because of its form, could be easily mistaken for an eagle.

3. Mr. Thomas Jex Preston, Jr., of Princeton University, *The Bronze Gates of Canosa*.

No abstract of this paper has been received.

4. Mr. L. D. Caskey, of the Museum of Fine Arts, Boston, and Mr. B. H. Hill, of the American School of Classical Studies at Athens, *Structural Notes on the Erechtheum*. (Read by Mr. Caskey.)

This paper will be published in a later number of the JOURNAL.

5. Dr. Arthur Fairbanks, of the Museum of Fine Arts, Boston, *A New Marble in the Boston Museum of Fine Arts*. (Read by Mr. L. D. Caskey.)

The Museum of Fine Arts in Boston has recently placed on exhibition a three-sided marble relief corresponding closely to the 'Ludovisi Throne' in shape, size, and style of workmanship. The presence of the delicate scroll at the bottom indicates what is missing from the relief in Rome. On the front a winged figure holds a pair of scales (beam missing) with a small nude figure in each scale pan. On either side of this figure is a draped seated woman. On one end of the throne is a nude boy, seated and playing the lyre; on the other end (which is much narrower) is a realistic old woman, seated, holding in her hand some object which has for the most part been chiselled away. The relief will be published later.

6. Mr. Francis G. Fitzpatrick, of Harvard University, *"Byzantine" Architecture in France*.

The controversy over the propriety of applying the term *Byzantine* to the churches having domes on pendentives in the south of

France is not yet at an end. The argument for the Byzantine derivation of these buildings was first seriously advanced by Félix de Verneilh in 1851 in his *L'Architecture byzantine en France*. All the buildings which he included in this category made use of the dome on pendentives; and this, he pointed out, was the most striking single characteristic of Byzantine architecture. He believed that the style was introduced into France directly from Venice, and he furnished considerable evidence to substantiate this belief. The main argument is based on the great similarity of the domed churches of St. Front at Périgueux and St. Mark's, Venice. He maintained that St. Front, which he dated from 984, was erected in imitation of St. Mark's, which he dated from 977. After its completion St. Front, according to Verneilh, served as the type from which all the other domed churches of the south of France were derived.

Critics of Verneilh early called attention to the fact that most of these churches which he called Byzantine are at least as much Romanesque as they are Byzantine. The most radical of Verneilh's later critics maintain that the French domed churches are not Byzantine at all, but native French products without foreign elements of any kind. This view is based partly upon the difference in construction which the domes, pendentives, and supporting members of these buildings reveal as compared with Byzantine models, and partly upon recent research into the history of St. Mark's and St. Front, which has tended to retard the date of erection for both of these domed churches (*i.e.* St. Mark's, 1063; St. Front, after 1120). Writers like Brutails and Spiers practically claim for the French dome on pendentives the merit of a new invention. It differs in many constructive details from the Byzantine form; but it must be admitted that the idea is still the same—it is still a dome on pendentives, and the differences may be accounted for partly by the materials employed and partly by the habits of the masons and builders of this region in the construction of walls and vaults in stone.

The weakness in the argument for the purely French origin of these eleventh-century domes lies in its inherent improbability, when it is remembered that the dome on pendentives had been in existence in the East for at least eight centuries. Spiers's assumption that in disposing of Verneilh's theory of the derivation of Byzantine influence through St. Mark's he has thus destroyed the case for the Oriental origin of the French domes is unwarranted. It was certainly possible for Eastern influence to reach southern France by other channels, although these may now be obscure or lost to view.

Both sides to the discussion have thus far ignored the domed churches of Cyprus, such as St. Barnabas, near Salamis, and the five-domed church of cruciform plan at Peristerona, near Nicosia, buildings which, as Enlart has pointed out, are constructed in the French manner. These are apparently of great antiquity, although their dates cannot be given with precision. Enlart believes them to be considerably older than the French domed churches. If this be so, we may still regard the French buildings as Oriental in origin, and it is quite possible and perhaps probable that they reached southern France by way of the island of Cyprus.

7. Professor Albert T. Clay, of the University of Pennsylvania, *Babylonian Bookkeeping*.

More than eighteen thousand tablets and fragments belonging to the administrative department of the temple of Enlil were found during the excavations of the University of Pennsylvania at Nippur, conducted by Dr. J. P. Peters (1889-90) and Dr. J. H. Haynes (1893-96). The latter found some of the tablets in the very position in which they were left when the archive room was destroyed; some were reclining against each other like a shelf of leaning books in an ill-kept library of to-day. They were dated in the reigns of the foreign dynasty known as the Kassite, which ruled over Babylonia during the greater portion of the second millennium before Christ. While thousands of temple archives have been found elsewhere in Babylonia, of earlier as well as later periods, these tablets perhaps better than others enable us to reconstruct the ancient system of Babylonian bookkeeping.

The archives include records which deal with the administration of the temple, under which palace, city, and state affairs were conducted. They include receipts of taxes or rents from Nippur, neighboring towns, and outlying districts about the city. With this revenue commercial transactions were conducted whereby a profit was gained. These include records of loans of animals, grain, and other temple property, and a large number of inventories which show at stated times the existing state of affairs. A great many records refer to salary and other payments to the storehouse officials, as well as to a host of functionaries in connection with the temple, palace, and state affairs. On the whole, the documents show how the institution was maintained, and how carefully the administrative affairs were conducted, not unlike modern institutions of a similar character.

THURSDAY, DECEMBER 30. 9.30 A.M.

1. Mr. Martin L. Rouse, of Toronto, *Hercules and Samson*.

The writer argued that Hercules is to be identified with Samson and that knowledge of him reached the Greeks through the Tyrians.

2. Professor Howard Crosby Butler, of Princeton University, *The Roman Fortresses in the Provinces of Syria and Arabia*.

A map of Syria, including the ancient provinces of the two Syrias and part of Arabia and indicating the positions of all the fortresses hitherto discovered in these regions, shows a comparatively straight, though broken, chain of military structures along the eastern border of the explored country. The southern part of the chain, in the old province of Arabia, comprises seven fortresses quite evenly disposed in a line one hundred miles long. Three of these, Koşêr il-Hallâbât, Dêr il-Kahf, and id-Diatheh, have been measured for publication in detail by the Princeton Expeditions to Syria; two more, Kaşr il-Abyad and Sês, are represented by sketch plans in M. de Vogüé's work, *La Syrie Centrale*; the others have been briefly described by M. Dussaud and the other explorers. These larger fortresses are from 150 to 250 feet square with angle towers, square or round, and often with towers in the middle of their sides. One of them is dated early in the third century A.D., three others may be dated by inscriptions of the early part of the fourth century; but all were probably founded in the second century, soon after the formation of the province of Arabia. These forts seem to have been connected by a line of small stations and watch towers disposed at nearly equal intervals.

Between the southern part of the chain and the northern group of fortresses is a gap of 100 miles, lying in a region for the most part unexplored. No fortresses have as yet been reported from this region, and the break in the chain may be accounted for by assuming that, at this point, the chain was deflected eastward toward Palmyra and the Euphrates. But north of the break the chain is taken up again, and is carried, on a slight curve, from Selemiyeh, ancient Salaminias, to Zebed, or almost to the Euphrates. This section of the chain is about seventy miles long and comprises six forts, three of which, Kaşr Ibn Wardân, Androna, and Stabl 'Antar, have been published in detailed drawings by the Princeton Expedition. These forts are substantially like the southern forts in size and in plan; but, out of the five that are dated, four belong to the latter half of the sixth century; while the easternmost is dated in the fourth century. These military stations have been frequently

referred to as frontier fortresses; but they cannot be said definitely to have been placed upon the *limes* until the regions still farther east shall have been explored. But, granting that they were on the frontier, we should find that the *limes* in Arabia remained stationary from the second to the seventh century; for there are inscriptions which prove that these forts were occupied during all that time, while the eastern *limes* of Northern Syria, if represented by these fortresses, was much further west in the latter half of the sixth century than it had been earlier, because no early forts west of the Euphrates are known.

Besides these so-called frontier fortresses there are two other sorts of military structures in Syria and Arabia: 1, the barracks of the large towns like Androna and Salaminias in the north, and Admedera and Umm idj-Djimâl in the south; and 2, the small road-fortresses which are found along the great highways of the Roman Empire. An example of this kind of fort is found in ancient Arabia at Kaşr il-B'aik, on Trajan's road, between Bostra and Philadelphia (Ammân), and another, from northern Syria, called il-Habbât, was probably on or near the road between Chalcis and Epiphanea. Both are to be published by the Princeton Expedition.

We have then, in these fortresses, in addition to the material for the study of the military architecture of the Roman and early Byzantine empires, much material for establishing the lines of the ancient *limes* at different periods, and, in connection with the inscriptions of these fortresses, much material for historical study. Several of these fortresses have yielded imperial inscriptions mentioning the names of legates, *duces*, and other officials, and the presence of certain legions or cohorts. One of them, the fortress at Kosêr il-Hallâbât, gives us a long edict of the Emperor Anastasius which will soon be published. But years of exploration and months of study are required before this subject can be discussed with any degree of finality.

3. Professor David G. Lyon, of Harvard University, *The Harvard Excavations at Samaria*.

This paper will be published essentially as read in the *Harvard Theological Review*.

The chief object in exploring Samaria is the search for material of Hebrew origin. The first campaign, 1908, began at the end of April, and continued, with two long interruptions, till near the end of August. While a small section of a broad Hebrew enclosing wall was found just before the work closed for the season, the more

imposing discoveries were from the Roman period. They included a mutilated marble statue, perhaps of a Roman emperor, a stone altar about 13 feet long and half as wide, a great stairway rising from the altar toward the south, about 80 feet broad and containing seventeen steps. On the stairway near its foot was lying a *stèle* with a Latin inscription apparently of the second century of our era. To the west of the stairway was a great chamber, partly of masonry and partly cut in the rock, once covered with an arched roof, of which only one course of stones still remains in position. South of the stairway and only a few inches below the surface was a platform paved with stone blocks and surrounded by very massive foundations at a lower level. South of the platform were massive walls running south and others running east and west.

The campaign of 1909 began about the first of June and closed the middle of November, with Dr. G. A. Reisner in charge. The space south, southeast, and southwest of the platform has been explored. Three great buildings have been recognized, a temple erected by Herod the Great, a reconstruction of this building by the Romans, and on the rock below all the other masonry the outline of a Hebrew building, believed to be the palace of Omri and Ahab. The space occupied by the palace has not yet all been dug over.

On the lower terraces, south of the palace just mentioned, many other walls of Hebrew buildings were found. The Herodian gateway on the western side of the city was also explored. It is flanked on north and south by two large circular towers, one of which was dug out. This tower seems to be of Greek origin, restored by the Romans, and rests apparently on the site originally occupied by a Hebrew tower. An important building on the eastern side of the hill near the village was also explored to the level of the Roman floor. Several of the monolithic columns of this building were in position, most of the shaft projecting above the soil. Below the Roman level are very massive walls which seem to be of Hebrew origin.

Of smaller objects found were masses of Greek and Roman pottery, mainly fragmentary, inscribed Rhodian jar handles, fragmentary Greek, Roman, and Hebrew inscriptions, coins, chiefly Roman, and part of a cuneiform inscription.

It is expected that the work will begin anew in May, 1910.

4. Professor C. F. Ross, of Allegheny College, *Reconstruction of the Later Toga*.

The history of the toga is the history of a continuous development from the simple to the complex, from the scant Etruscan form to the

early Roman form, binding in the wearer's right arm, and eventually to the highly decorative toga of Augustus's time. When this limit of elaboration is reached, the custom is evolved of formalizing the two essential effects produced by the imperial toga, the girdle-like band across the chest and the full sweeping curve of the *sinus*. This formalizing appears first in lengthening the part of the toga falling down the back into a band so that it can pass around the body and produce these two effects, as in the so-called "aedile" statues in Rome. This band is then severed entirely from the toga and is fastened in front at the armpit or the chest. Busts showing these bands may be divided into four type forms. By the various ways in which this band passes about the body, whether under or over the right shoulder, and whether the end of the band passes over the left shoulder again or hangs over the left arm, the first three types are produced. The fourth type, with a separate band depending from the diagonal one, is produced by the attempt to show the *sinus* curve in the opposite direction. In this the end of the band is held loosely in the right hand. The bands seem to have had no special meaning. They merely produce a formal toga. Ridges and incisions on the bands in the marble in a few cases, however, may indicate that originally insignia of rank were painted or otherwise produced here.

5. Professor Harry L. Wilson, of Johns Hopkins University,
An Unpublished Epigraphical Manuscript from Spain.

The speaker described a manuscript collection of the ancient inscriptions of Cáceres and its vicinity, made by Claudio Constanzo between 1792 and 1800. This manuscript, which was recently purchased in a second-hand book shop in Madrid, contains 143 pages written in a most careful and beautiful hand, and is not the same as the manuscript of Constanzo which was known to the editor of the second volume of the *Corpus Inscriptionum Latinarum*. The total number of inscriptions in this collection is ninety-three, of which five are unpublished. Nineteen are found among the spurious inscriptions of Spain and forty-one were not known to have been copied by Constanzo. In spite of the author's stupidity and ignorance, the collection will add something to our knowledge of the inscriptions of Cáceres and the neighboring region. Fuller publication of the manuscript will be made at a later time.

6. Professor F. B. Tarbell, of the University of Chicago,
Architecture on Attic Vases.

The representations of buildings on Attic vases teach us nothing regarding Greek architecture. The discrepancies between these representations and the contemporary buildings known from existing remains are probably due to bad drawing.

7. Dr. R. V. D. Magoffin, of Johns Hopkins University, *The Alban Villa of Domitian.*

This paper presented briefly the results of the work done during the summer of 1909 in the Barberini gardens and on the property of the Riformati monastery, on the Roman remains which are commonly called the Villa of Domitian. The investigation showed that the villa was not so large as has been supposed, that it is a four-terraced villa, some 600 m. in length, extending from the top of the ridge along the Alban Lake down toward the Appian Way. The villa seems to be an enlargement from an earlier two-terraced villa, which may be the republican villa of Clodius or of Pompey the Great. The villa did not connect with the other great imperial buildings which were built where the town of Albano now stands, as has been said, nor were there terraces down the slope toward the Alban Lake, although there seems to be a small square terrace on the top of the ridge overlooking the lake, which was connected with the villa proper, probably by an arched passage over the ridge road, which is certainly an ancient road. Further suggestions are made concerning the complexes of buildings and the purpose of several corridors and arches. The paper will not be published until a plan and perhaps a restoration can be offered with it.

8. Professor Walter Dennison, of the University of Michigan, *A Byzantine Treasure from Egypt in the Possession of Charles L. Freer.*

Early in the year 1909 a collection of thirteen pieces belonging to an exceptionally rich Byzantine treasure came into the hands of a well-known antiquary of Cairo. Later, nine of these pieces were purchased by Mr. Charles L. Freer of Detroit, namely, two armlets, two earrings, one large and three small medallions, all of gold, and a small statuette of rock-crystal. The other four pieces, which are in Europe, are two bracelets, a necklace, and one large medallion. According to the account of the Arab who sold the treasure to the antiquary, all the objects were found at a small village called Tomet near Assiût in Upper Egypt. Of the large medallions one, set in a gold frame and now in the possession of Mr. Freer, is a medallion of Theodosius, which bears on the obverse a bust of the emperor facing

to the right with the legend, DNTHEODO SIVSPFAVG and on the reverse Theodosius holding the *labarum* with his left hand, and with his right raising a kneeling female figure wearing the turreted crown; the legend is RESTITVTORREI PVBLICAE. The diameter of the whole is about $10\frac{3}{4}$ cm., of the imperial medallion about $4\frac{3}{4}$ cm. The other medallion, likewise set in a beautiful frame, bears no inscription which would determine its date; it has on the obverse the scene of the annunciation and on the reverse a representation of the miracle at the marriage in Cana, with the legend, +ΠΡΩΤΑCYMI WN+ ("First of the signs").

The small medallions are about 4 cm. in diameter and consist of gold coins enclosed in gold frames. Two of the coins are of Justinian, the third of Justinus. An interesting feature of each of these small medallions is an inscription in Greek that runs around the frame near the outer edge. On one this inscription repeats the first half of Psalms 91, 11; on another it completes the verse. Thus, on the first we read, +ΟΤΙΤΟΙCΑΓΓΕΧΟΙCΑΥΤΟΥΕΝΤΕΧΕΙΤΑΙ ΠΕΡΙCΟΥ (ὅτι τοῖς ἀγγέλοις αὐτοῦ ἐντελείται περὶ σοῦ.); on the other, +ΤΟΥΔΙΦΥΛΑΞΑΙCΕΕΝΤΑCΑΙCΤΑΙCΟΔΟΙCΚΟΥ (τοῦ διφυλάξαι σε ἐν πάσαις ταῖς ὁδοῖς σου). On one side of each medallion two rings appear for a hinge or clasp, and three similar rings on the opposite side. The third small medallion bears the inscription, +ΕΜΜΑΝΟΥΗΛΟΜΕΘΕΡΜΕΝΕΥΟΜΕΝΟΝΟΘΕ ΜΕΘΗΜΩ, a quotation from Matth. 1, 23, Ἐμμανουὴλ ὃ ἐστὶν μεθερμηνεύμενον μεθ' ἡμῶν ὁ θεός. The quotation on the medallion is, therefore, abbreviated, and the order of expression in the last four words is reversed. Moreover, while the spacing at the beginning of the inscription is quite generous, toward the end the letters are somewhat cramped and smaller. From the medallion hang three pendant chains (10 cm. long) ending in pearls.

The clasp of the two fine armlets is concealed by a boss and two shell-shaped ornaments. The two earrings are 11 cm. long, and consist each of three long pendants of gold decorated with crystals, pearls, and emeralds. The necklace is made of eleven small plates of gold *à jour* skilfully hinged together and profusely ornamented with pearls and precious stones. Twenty-nine pearls are still in place. There are settings for sixty-one precious stones, but several have fallen out. Hanging from the lower edge of the necklace were seventeen pendants terminating in large sapphires surmounted with pearls. Four of the sapphires are now missing.

The rock-crystal statuette is about $9\frac{1}{2}$ cm. high including the base ($1\frac{1}{4}$ cm.) of gilded silver in which the statuette is fastened. The

head and the shoulders, which are slightly stooping, are turned a little to the right. The right hand holds a round object, possibly a bowl, the left arm hangs straight down by the body; the feet are planted closely together. The pose is rather stiff. The figure seems to represent a woman, and since the features are strongly individualized, this is perhaps a portrait. The tunic is girt high, while the outer garment falls below the right arm and over the left forearm. A curious boring (about $\frac{3}{4}$ cm. in diameter) was made nearly through the crystal from the front low down between the feet.

9. Dr. D. Brainerd Spooner, Superintendent, Archaeological Survey, Northwest Frontier, India, *Discovery of the Lost Stūpa of Kanishka and Relics of Gautama Buddha*. (Read by Professor H. R. Fairclough, of Leland Stanford University.)

The paper, illustrated by twenty-three lantern slides, gave an account of the official examination of two large mounds lying in the fields east of Peshawar and known locally as Shah-ji-ki-Dheri. Here, some years ago, M. Foucher had suggested that one should look for the site of the great monument — pagoda and monastery — which the Chinese Pilgrims tell us was erected by King Kanishka the Kushāṇa near his capital city of Purushapura. The pagoda is described as at once the loftiest and the most magnificent in ancient India, having been built to enshrine relics of Gautama Buddha. The monastery is said to have been the seat of some of the most learned doctors of the early church, where many of the sacred books had been composed. Yüan Chwang visited the monastery in the seventh century, but no reference to it is found later than the sixteenth century.

The excavations were begun in the winter of 1907-08. The results of the first season's work were disappointing, but those of the second unusually rich, the ground plan of the whole stūpa being finally revealed. The central portion of the platform is a square, with massive round towers at each corner and an extensive projection running out on all four sides. No similar plan is known in any other monument of the period, and the total diameter of 286 feet greatly exceeds that of any other stūpa of that age.

Assuming that, as usual, the relic-chamber would be in the exact centre, the diagonal was drawn and a huge pit outlined midway between the corners and then slowly taken down. The work was most arduous, owing to the solid nature of the material passed through, really the inner core of the dome, or rather the débris of the same. But at last, after passing what had seemed at first to be

virgin soil beneath the monument, the relic-chamber was found. The copper casket was still upright and in its original position. It was not, however, quite intact, as two of the three figures originally supported by the lid, the two Bodhisattvas, had been broken off, together with the halo of the seated Buddha figure. But these pieces were all recovered in close proximity to the casket. The bottom of the casket was loose, though still in position, and lying on it was disclosed the inner reliquary, with its original sealing beside it, bearing the device of an elephant. The reliquary itself is of clear rock-crystal, measuring $2\frac{1}{2}$ by $1\frac{1}{2}$ inches. It is six-sided and slightly barrel-shaped, with one end hollowed out for about one-half the length of the whole. It was within this cavity that the relics were found, in whose honor the whole mighty monument had been erected. They consist only of three tiny fragments of charred bone, the largest not much bigger than a small marble. It is safe to assume that Kanishka must have believed these relics authentic, or he would not have erected in their honor the mightiest and most magnificent of the monuments of his time.

From the base to the edge of the slightly curved lid the casket measures 4 inches, with a total height of $7\frac{1}{4}$ inches to the top of the seated Buddha figure, while in form it is cylindrical with a diameter of 5 inches. The lid itself is decorated with lotus petals faintly traced, so that the whole represents a full-blown flower, on which the two standing Bodhisattvas and the seated Buddha figure rest, although the latter is really seated on a smaller lotus flower which rises on a slight stem from the centre of the former. Below the edge of this lid, along the lip which fitted over the top of the casket, is a very graceful frieze of flying geese in low relief, carrying garlands in their beaks, while the main body of the casket is decorated with a more elaborate frieze of seated Buddha figures upheld, as it were, by a long, undulating garland borne by little Erotes in a variety of animated attitudes. The centre of this frieze is occupied by a large standing figure of the king himself with two attendants. The design is admirable, but the execution is hardly equal to it. It is certainly not a product of the *Blütezeit* of Gandhāra art, and is therefore of added interest and value, as it tends to disprove the theory that this school reached its highest glory under the Great Kushāna.

But the figured devices on the casket are of no greater interest than the inscriptions. These are very faintly traced in the dotted or punctured form of cursive Kharoshthi, which is one of the most puzzling scripts of ancient India, and the only one read from right

to left. The most interesting of the three inscriptions hitherto deciphered is the one in the spaces below this frieze. This I read as *Dasa Agisala Navakarmi Kanashkasa Vihare Mahasenasa Sangharame*, and would translate as the signature, so to speak, of "the slave Agisalaos, the superintendent of works at Kanishka's Vihāra in the Sangharāma of Mahāsenā." Unfortunately, nothing further is known of Agisalaos or of Mahāsenā. The former was doubtless a Bactrian Greek in Kanishka's service, which gives us epigraphical evidence of the Greek influence in the Gandhāra School, so eloquently attested otherwise by the sculptures themselves.

The artistic remains thus far recovered are few and inferior, though by no means unimportant, and it would be strange indeed if further exploration were not to yield material of great value for the history both of art and of architecture in Gandhāra.

10. Dr. Oliver S. Tonks, of Princeton University, *Experiments with the Mycenaean Glaze*.

This paper will be published in full in a later number of the JOURNAL.

THURSDAY, DECEMBER 30. 2 P.M.

Joint Session of the Institute and the Philological Association.

The following archaeological papers were presented:

1. Mr. W. B. Dinsmoor, of the American School of Classical Studies at Athens, and Mr. Henry D. Wood, of Philadelphia, *Structural Notes on the Propylaea*. (Read by Mr. Wood.)

This paper will be published in a later number of the JOURNAL.

2. Dr. William Hayes Ward, of New York, *The Representation of Babylonian Gods in Art*.

This paper showed on the screen the succession of deities as worshipped in Babylonia, Assyria, and in the Hittite kingdom and in Persia from about 4000 B.C. to about 600 B.C. Nothing is earlier than the representation of one beardless deity, or two facing each other, drinking through a tube from an amphora. Then we have several forms of the Babylonian sun-god. One early type shows him with rays, fighting an enemy and pushing him against a mountain. He represents the sun's heat as it drives away the clouds on the eastern mountains, and corresponds to the later Nergal, god of

the summer heat and pestilence. Another early form is of the sun-god coming out of the gates of the morning and stepping on a mountain. He may have rays or streams about him, and carries a notched sword, apparently armed with flint flakes. Another early form of the sun-god Shamash represents him seated, with either rays from his body or streams, as he was regarded as the giver both of light and water. When three large dots are behind this god he represents the moon-god Sin, or Thirty.

A very early representation is that of a god in a four-wheeled chariot, with a whip, driving a harnessed "dragon," between whose wings stands a naked goddess with a thunderbolt. These may represent Bel and Belit; but the fight between Bel and the Dragon is rare in Babylonian art, although very frequent in the later Assyrian art, where for the conventional dragon may be substituted any composite or naturalistic creature, until in the Persian art it becomes almost the only representation of a deity fighting one or two lions.

Of the goddesses the earliest seems to be Bau, afterwards identified with Gula. She is seated, with hair either falling in a long tress or looped behind, and has no weapon or emblem, except that at times she is attended by the goose. Sometimes she seems to be the goddess of fertility, and stalks of grain rise from her body. When a similar seated goddess carries a naked child, it probably represents the thought that the worshipper was nursed by the goddess, as this is occasionally claimed by kings, and we have no Babylonian mother and child such as the Egyptian Isis and Horus. The other frequent goddess is Ishtar, either seated, in the older art, and with alternate clubs and scimitars rising from her shoulders, or standing, accompanied by a lion, in front view, with quivers of arrows from each shoulder, and lifting the double serpent caduceus.

Very frequent in the very early art and that which immediately follows it is Gilgamesh, with his associate Eabani, fighting a lion, a bison, a buffalo, or a stag or oryx. The artists delighted to discover various ways of exhibiting his prowess.

In the middle Babylonian period, from 2500 to 1000 B.C., there emerge several new forms of deities which were derived from the West, where the Syro-Hittite civilization prevailed. In that region we know three preëminent Hittite gods, one a dignified superior god, well clothed and usually with no weapon, who perhaps was Tarkhu, the biblical Terah, father of Abraham. With him was a nude goddess, later represented as partly clothed and with a dove, corresponding to Aphrodite. She was probably the wife of Tarkhu. The third was the Hittite Teshub, and was probably their son. He is repre-

sented as wearing a very short garment, a peaked helmet, and loaded with weapons. He leads a bull and stands on mountains. He is the god of lightning, represented by his weapons, and thunder, represented by the bellowing bull, and of mountains and war. He was introduced to the Babylonians under the Syrian name of Adad (Hadad, Addu) and with the same attributes, except that he carried a thunderbolt, not known to Hittite art. The early worship of Yahve by the Hebrews was probably related to this god. The superior Hittite god Tarkhu was differentiated into two Babylonian gods, of whom one was Marduk and the other Martu, both of whom in art much resemble him. Marduk is known by his scimitar held downward by his side, while Martu simply lifts a short sceptre to his breast. The naked Hittite goddess appears in Babylonian art as the nude Zirbanit, wife of Marduk.

The Assyrian deities varied somewhat in their representation from the Babylonian. We find Ea, god of the waters, sometimes following a Babylonian convention, which represents the god as holding a vase from which streams of water gush and fall to the ground, perhaps to be taken up by other vases, while beside him are the goat-fish and the man-fish; at other times the god is seated over a goat-fish. Adad is represented over a bull, and Ishtar over a lion, and each enveloped in rays ending with stars. Extremely frequent is the representation of what is called the sacred tree, but which is rather the tree of life. The accompanying divine figure, with a cone and a pail, is not to be considered, as usually supposed, to be fertilizing the pistillate flowers of the palm with the staminate flowers, but as plucking off the fruit, representing long life and other blessings, to present to the worshipper. In some cases the breaking off of the fruit is clearly represented.

3. Dr. Edgar L. Hewett, of the School of American Archaeology, *The Excavations of the School of American Archaeology in 1909*.

The paper was intended to give a picture of the life of one of the ancient races of America, formerly occupying the southwestern part of the United States, as disclosed by the excavation of a number of their buried towns. Views were shown of the cliff towns of Kit Sil (Keet Seel) and Betatakin, discovered by the expedition during the past summer and now for the first time made known to the scientific world. These were cliff towns, consisting of stone buildings, several stories high, and found in such a good state of preservation that the floors, ceilings, and roofs were still in place and perfectly preserved.

Next were shown the ruins on Pajarito plateau, near Santa Fé, New Mexico, where excavations have been in progress for three seasons past. These buildings were once from one to four stories high, built against the vertical walls of the cliffs, back of which were chambers excavated in the rocks, which were used for living rooms and in some cases for the burial of the dead. Other villages of similar character were built on higher ledges. On the tops of the mesas were the ruins of enormous community houses, which were shown in the process of excavation. One of these, known as the Puye, consisted of four great buildings, forming a quadrangle about 300 feet square. The excavation of the "South House" of the quadrangle disclosed a ground plan of 200 rooms. It was predicted that the excavations of the four sides would reveal about 800 rooms on the first floor, and as the building was of three or four stories, the original number of rooms was estimated to have been about 1500. Other ruins in El Rito de los Frijoles near Santa Fé were shown in the process of excavation. Of especial interest were the subterranean sanctuaries, several pictures of which were shown. These had been the places of council and of religious ceremonies, the place where the priests retired for silent thought and the head men gathered to seek wisdom from Mother Earth, from which all men came, the symbol of this being the pit near the altar, known as the *sipapu*.

The methods of disposing of the dead in crypts and cemeteries was also shown, and it had been found that the bodies had been invariably folded at burial in the "embryonic position," being the same in which the child is born. The bodies were wrapped in cotton cloth and burial robes of beaver and otter fur. It was shown that this mode of burial had prevailed in ancient times widely over the American continent as well as in Egypt and parts of Asia. The relationship of the ancient cliff peoples to the modern tribes was established on anatomical, traditionary, and cultural proof.

Evidences of the great age of these ruins were shown in the trails deeply worn in the rocks. From six to ten centuries was assigned as the time that had elapsed since the abandonment of these ancient cities, the cause of extinction being the drying up of the springs and streams. Evidences of this were found in the physiographic condition of the country, the legends of the Pueblo Indians, and the symbolism of the decorations on the pottery found in the ruins, which usually depict some emblem of the god, Awanyu, preserver of the waters.

It was shown how, in the excavations now going on, every effort

was being made to preserve the ruins from deterioration, to restore certain details so as to make them known and accessible to the travelling public. Views of the interior of rooms were shown with the articles of domestic use restored to their original places. The paper closed with a view designed to give a correct picture of the ancient town of Puyé, the terraced houses clinging to the cliff walls, the ladders, stairways, and trails in place, and the whole crowned by the great community house on the mesa top, all as it probably existed a thousand years ago.

FRIDAY, DECEMBER 31. 9.30 A.M.

1. Dr. Harold R. Hastings, of the University of Wisconsin, *Identification of the Persons represented upon the Attic Grave Reliefs.*

This paper will be published in a later number of the JOURNAL.

2. Professor William H. Goodyear, of the Brooklyn Institute of Arts and Sciences, *Recently Published Measurements relative to the Leaning Tower of Pisa and the Pisa Cathedral.*

This paper will be published in a later number of the JOURNAL.

3. Professor James R. Wheeler, of Columbia University, *Notes on a Scyphus in Boston.*

The subject of discussion was the identity in the design on the front of a Corinthian scyphus in the Museum of Fine Arts with that on a scyphus from Samos, published by Boehlau, *Aus ion. u. ital. Nekropolen*, Pl. IV, 1. The two vases are also practically of the same size and technique, and differ only in the design on the back, which on the Boston vase would be considered Corinthian (the common type of Corinthian panther), on the Samian vase Ionic (lions of Ionic type). Thus the vases appear to be modelled on the same pattern. The vase from Samos seems to be quite as Ionic as it is Corinthian, and it may be questioned whether the Boston vase, the provenience of which is uncertain, is rightly put in the latter class. The so-called Corinthian panthers are not exclusively Corinthian, and on a Chalcidian vase (Furtwängler u. Reichhold, *Gr. Vasenmalerei*, Pl. 31) they may be seen in juxtaposition with lions of Ionic type.

4. Professor Lewis B. Paton, of Hartford Theological Seminary, *Some Phoenician Sarcophagi*.

No abstract of this paper has been received.

5. Professor Charles Knapp, of Barnard College, *The Side Entrances to the Stage of the Roman Theatre*.

The author pointed out that the discussions of this subject both in the manuals and in the various editions of Plautus and Terence have been curiously inadequate. Some writers leave the matter untouched, some confound the Greek and the Roman practice; others content themselves with a categorical statement unaccompanied by evidence, even that of Plautus and Terence; if passages in Plautus and Terence or Vitruvius are referred to, they are not adequately discussed.

The author then pointed out that Vitruvius V, 6, 8 clearly shows that the side entrances to the stage in the Roman theatre had, sometimes at least, each its own significance; Vitruvius does not, however, tell us which entrance led *a foro*, which led *a peregre*. For light on that problem we must go elsewhere, to Plautus, *Amphitruo*, 333, *Menaechmi*, 551-558, and to Terence, *Andria*, 720 ff., especially 732 ff. These passages were considered carefully, in great detail, and the conclusion was reached that for these three plays, at least, the side entrance to the stage lying to the *left* of the spectators led *a peregre*, that to the *right* of the spectators led *a foro*. It was then pointed out that in other plays the matter is not so simple. Thus in the *Rudens* the side entrance to the right of the spectators led from a lonely stretch of the shore to the left (west) of Cyrene, the side entrance to the left of the spectators led from Cyrene itself or at least from the harbor of Cyrene. It was noted, further, that in the *Heautontimorumenos*, which is laid in the suburbs of Athens, the characters always enter from a house except in two scenes; there the characters enter from the direction of Athens, but their own words or something in the play itself makes the direction from which they come perfectly clear. It was suggested further that sometimes at least actors going *rus* or coming *rure* used the *angiportum*; the *angiportum* could also be used as a roundabout way of reaching the forum from the stage.

The results reached for the *Amphitruo*, the *Menaechmi*, and the *Andria* are, so far as they relate to motion from the harbor or from the forum, identical with the views to be found in the books. There is this difference, however: others seem to have taken a traditional view without examination, and to have assumed that the rule applied

to all plays. The author has examined or will examine all available evidence and has shown clearly that no single conventional rule can be applied to all plays. He has shown further that for the statements ordinarily made about movement to and from the country (*rus*) there is no evidence in Vitruvius, none in Terence, and little in Plautus and that little uncertain.

Finally the author examined with care a paper by Albert Müller in *Philologus*, LIX (1900), entitled "Scenisches zu Römischen Komödien" (I. Rechts und links, pp. 9-15) and showed clearly that Müller is entirely wrong. So, too, he pointed out, were Dörpfeld-Reich, *Das griechische Theater*, p. 256, whose views Müller rightly rejects, though he seeks fruitlessly to improve upon them.

6. Mr. Thomas Spencer Jerome, of Capri, Italy, *A Note on the Esoteric Doctrines of the Eleusinian Mysteries*. (Read by Professor Martin L. D'Ooge, of the University of Michigan.)

The esoteric and fundamental doctrines of the Eleusinian mysteries must in some way have been woven into the countless speculative theories regarding the nature of life and man's relation to the universe propounded by generations of Greek philosophers. Maury and Creuzer at any rate hold this opinion. The philosophers would naturally avoid making any direct allusion to the teachings of these Mysteries, while appropriating them and working them over into their own systems. The Demeter-Persephone myth is, doubtless, the corn myth. Where can we find philosophic doctrines which conform to and fit into the ideas suggested by this myth? Certainly not in the teachings of Epicurus, nor of the Stoics, nor of Pyrrho and the other Sceptics. But we do find in the doctrine of Metempsychosis, associated with the name of Pythagoras and later developed by Plato, a decided kinship with the underlying idea of the corn myth. Plutarch (*de Is. et Os.* I), Diodorus (I, 96), and Synesius (*Enc. Calv.* 7) appear to indicate that the doctrine of Metempsychosis was the gist of the teaching of the Mysteries. Pythagoras was an ardent believer in the Demeter cult, his house at Metapontum being called the Temple of Demeter; and Proclus (*Comm. Plato's Pol.* I) says that Plato derived many of his dogmas from the Mysteries, referring especially to the fate of pure and impure souls. Mr. Jerome suggests that the esoteric doctrines of the Eleusinian Mysteries taught the neophyte the belief that his soul is in a course of development, and that after his body has been laid in the ground

his soul springs again into a new life, and that the kind of soul one sows at death determines the harvest one reaps in the next stage of existence, and so on in rhythmic cycles of death and rebirth; until at last the soul, when purified, becomes absorbed in the divine, which is God.

7. Dr. Kendall K. Smith, of Harvard University, *Unpublished Inscriptions from Corinth*.

This paper will be published in a later number of the JOURNAL.

8. Mr. Clarence Ward, of Rutgers College, *Some Problems in Mediaeval Vaulting*.

The vault problems considered in this paper were those which confronted the mediaeval builder when he was required to vault the apse and ambulatory of his churches, these being more complex in plan than the nave, aisles, or transept.

For the apse, the Romanesque builders employed the simple half-dome of semicircular or pointed section, whose masonry lay in horizontal courses resting directly upon the apse walls. Salient, pilaster-like strips resembling ribs but strengthening rather than supporting the vault occur in some places (*e.g.* Avignon, N. D. des Doms; Boscherville, S. Georges). So long as the half-dome rested directly upon an outer wall in which windows could be cut, it was a practical and easily constructed vault. With the introduction of the ambulatory, the lighting problem became a difficult one; and with the retention of the half-dome, two methods only were possible, and neither solved the problem. The first was to admit the light under the ambulatory arches, placing the vault directly upon these (*e.g.* Cunault, Abbey Church). The second was to build a wall pierced with windows above the arches and under the half-dome (*e.g.* S. Savin, Church). The first method gave insufficient light, the second rendered difficult the support of the vault. The problem was eventually solved by the invention of the Gothic *chevet* which came with the introduction of rib construction. A series of radiating and wall ribs now supported the apse vault, but were independent of its panels, whose masonry now ran in courses at right angles to the outer walls, resting upon the ribs and forming a series of cells into which rose the heads of tall windows. Three great advantages were gained, lighter and more easily constructed vaults, concentrated pressures, easily met, and falling as low as the uniform

pressure of the half-dome, and spaces for large windows which could rise even to the vault-crown, thus supplying ample light. The position of the keystone varied in these vaults, making them differ somewhat in construction and appearance. A later development of the *chevet* consisted largely in an increase in the number of ribs employed, these often being added with little or no reference to the actual support of the vault but rather as decorative features (*e.g.* Antwerp, S. Jacques, where the apse has a central pier; L'Epine, near Châlons-sur-Marne; Freiburg, Cathedral).

The simple annular vault, although used by the Romans, did not become a popular form of Romanesque ambulatory vaulting, though found in a few churches and crypts. Intersected by expanding tunnel vaults, it did, however, aid in the development of the groined ambulatory vault which was the type most generally employed, either with or without transverse arches, the former being the most advanced form prior to the introduction of ribs. Even the introduction of ribs in most cases changed the structure rather than the form of the vault, the fully developed ribbed vault of trapezoidal plan simply replacing the similar groined vault. Attempts were made to improve upon this vault and to build one more adapted to the ambulatory plan. One method was to divide the ambulatory into alternating squares and triangles and vaulting each of these (*e.g.* Le Mans, Cathedral, outer ambulatory). Another was to place two triangles between squares, while a third consisted in dividing the entire ambulatory into triangles, each vaulted with or without interior ribs. In still other cases, the simple trapezoidal vault is modified by the addition of one or more ribs in the large and awkward outer cell, dividing it into smaller cells like those of a *chevet*. Similar vaults, but with the outer wall broken out so that a niche or veritable chapel is included under them, are also found.

All these methods show the skill with which the mediaeval builder vaulted spaces of unusual shape which his church plan presented. A still further example is to be seen in the church of the Jacobins at Toulouse, where there is a central row of columns and also an apsidal termination.

9. Mr. George W. Elderkin, of the American School of Classical Studies, Athens, *A Ceramic Note on Bacchylides, XVI, 97*. (Read in abstract by Professor Harold N. Fowler, of Western Reserve University.)

To be published.

10. Mr. George W. Elderkin, of the American School of Classical Studies, Athens, *Maeander or Labyrinth: a Comparative Study of the Red-figured Cylices*. (Read in abstract by Professor Harold N. Fowler, of Western Reserve University.)

To be published.

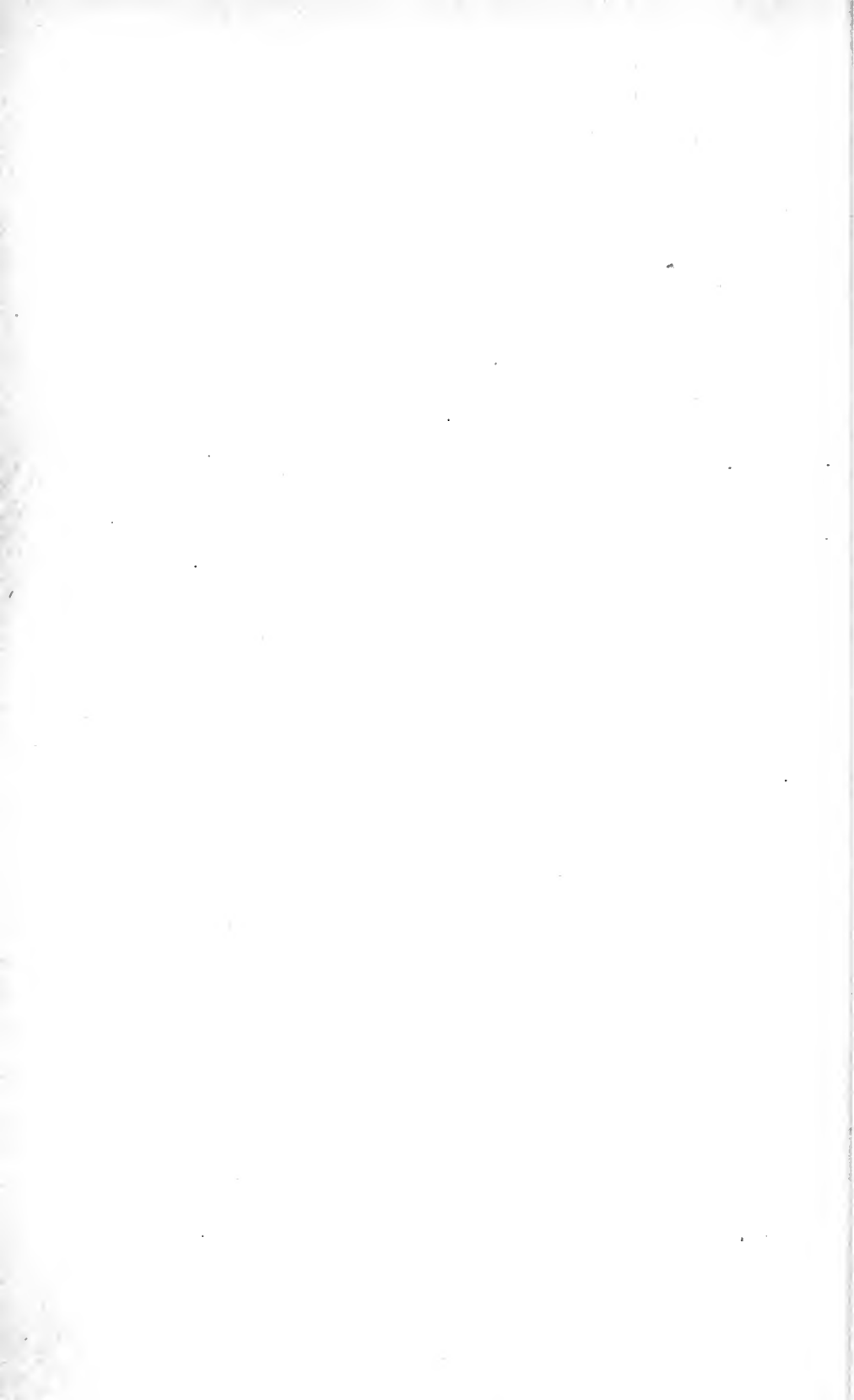
11. Professor Charles R. Morey, of Princeton University, *The Coinage of Bostra*.

The coin types of Bostra in Arabia are largely dominated by the Dusares cult. The representation of Dusares among the Nabatheans, the inhabitants of the district comprised in the province of Arabia, took the form of a baetylion standing on a base at Petra and Adraa, but an anthropomorphic type was used at Bostra. A bronze coin of Commodus in the Princeton collection presents the anthropomorphic Dusares type for the first time and shows that he was assimilated to Dionysus. This coin bears on the reverse the draped bust of a young god, with diadem and long flowing hair, and the inscription: DOVCAPHC BOCTPHNWN. The god standing in a temple on the reverse of a coin of Elagabalus is also Dusares, since he is costumed like Dionysus, and the animal at his feet, though the coin is badly worn, is proved to be a leopard by the appearance of this animal in a replica of the type on a coin of Bostra struck under Etruscilla. The camel on Bostra coins of Antoninus Pius and Commodus has a religious significance and is connected with the cult of Dusares, as is shown by the dedication of two golden camels to Dusares by a Nabathean merchant residing at Puteoli. The figure called "Silenus" by Mionnet and De Saulcy, occurring on the reverse of Bostra coins, is the Marsyas type regularly used on city coins to signify the possession of colonial privileges. The appearance of the "colonus type" and a Latin inscription on a coin of Elagabalus show that Bostra became a Roman colony in his reign and not under Alexander Severus, as was hitherto supposed. Dussaud's objection to the "winepress type" is not to be considered. The Ammon type was introduced into Bostra coinage by the *III Legio Cyrenaica*, whose former quarters were at Cyrene, the centre of Ammon worship. Dussaud's theory that the anthropomorphic type of Dusares took the form of Ammon is disproved by the appearance of the real Dusares type on the Princeton coin. This Dusares type may be identical with that on the reverse of coins of Nabathean kings, hitherto explained as a royal head. The "Astarte" type is the usual city Tyche.

Other papers read by title were :

Professor George H. Chase, of Harvard University, *A Bronze Cista belonging to James Loeb, Esq.* ; Professor Paul V. C. Baur, of Yale University, *Some New Centaurs* ; Mr. John P. Harrington, of the School of American Archaeology, *The Language of the Tano Indians of New Mexico* ; Mr. Sylvanus C. Morley, of the School of American Archaeology, *The Correlation of Maya and Christian Chronology* (to be published in the JOURNAL) ; Professor Mitchell Carroll, of George Washington University, *Carl Robert and the Purpose of Pausanias' Description of Greece* ; Professor James H. Breasted, of the University of Chicago, *The Pyramids of Meroe* ; Professor John C. Rolfe, of the University of Pennsylvania, *The Connection of Mirrors with Burial* ; Professor A. L. Frothingham, of Princeton, *How not to date Roman Sarcophagi* ; and *Contributions to the Study of the Roman Pomerium*.

The next general meeting is to be held at Brown University, Providence, Rhode Island, during the Christmas holidays of 1910. The American Philological Association will meet at the same time and place.



ARCHAEOLOGICAL NEWS¹

NOTES ON RECENT EXCAVATIONS AND DISCOVERIES; OTHER NEWS

WILLIAM N. BATES, *Editor*

220, St. Mark's Square, Philadelphia, Pa.

GENERAL AND MISCELLANEOUS

AN INTERNATIONAL NUMISMATIC CONGRESS.—An international numismatic congress will be held in Brussels, June 26-29, 1910. Those who wish to present papers are requested to inform Vicomte B. de Jonghe, 60, Rue du Trône, or Alphonse de Witte, 55, Rue du Trône, Brussels, as soon as possible. Up to December 10 the titles of fifty-eight papers to be read were recorded. The complete programme of the congress is published in *Mb. Num. Ges. Wien*, VIII, 1909, pp. 59-62.

ARABIA. — HEREIBEH. — A Lihyanite Sanctuary.—In *C. R. Acad. Insc.* 1909, pp. 457-461 (fig.), Father LAGRANGE gives a brief account of two statues found by Jaussen and Savignac at Hereibeh, 1 km. north of el Ela in northern Arabia. They are about 2 metres high and probably represent kings. An inscription found a short distance away implies that a Lihyanite sanctuary was located at this spot. The hostility of the inhabitants prevented a careful examination of the site.

BUCHAREST. — A Palmyrene Funerary Inscription.—In *Eph. Sem. Ep.* III, pp. 29-32 (pl.), M. LIDZBARSKI publishes for the first time a Palmyrene inscription found at Constanza in Roumania, and now preserved in the museum at Bucharest. The monument dates from the first half of the third century A.D., and is very similar to an inscription from Palmyra which is exactly dated. The inscription was probably erected by a soldier in the Roman army which was stationed in Roumania. Several Palmyrene inscriptions have been found in the adjacent region of Dacia.

¹ The departments of Archaeological News and Discussions and of Bibliography of Archaeological Books are conducted by Professor BATES, Editor-in-charge, assisted by Professor C. N. BROWN, Miss MARY H. BUCKINGHAM, Mr. L. D. CASKEY, Miss EDITH H. HALL, Mr. HAROLD R. HASTINGS, Professor ELMER T. MERRILL, Professor FRANK G. MOORE, Professor CHARLES R. MOREY, Miss M. L. NICHOLS, Dr. JAMES M. PATON, Professor LEWIS B. PATON, Professor A. S. PEASE, Professor S. B. PLATNER, Dr. N. P. VLACHOS, and the Editors, especially Professor MARQUAND.

No attempt is made to include in this number of the JOURNAL material published after December 31, 1909.

For an explanation of the abbreviations, see pp. 140, 141.

NECROLOGY.—**Auguste Choisy.**—Auguste Choisy, who died suddenly, September 18, 1909, in his sixty-ninth year, rendered most distinguished service to the study of ancient architecture. His books on the art of building among the Egyptians, the Romans, and the Byzantines, his epigraphical studies in Greek architecture, and his great history of architecture are already classics, and their influence will be great and lasting. The Society of British Architects justly awarded him its great gold medal. (S. R., *R. Arch.* XIV, 1909, p. 277.)

Jules Delamarre.—December 17, 1909, occurred at Paris the death of the still youthful Jules Delamarre, the brilliant and diligent collector and editor of the inscriptions of Amorgos (*I.G. XII*, fasc. 7, Berlin, 1908). To him is due also the determination of the date of the sculptor Silanion. He had suffered for years from a lingering disease. (S. R., *R. Arch.* XIV, 1909, p. 463.)

Richard Engelmann.—The death of Richard Engelmann followed a stroke of apoplexy at the meeting of philologists at Graz. He was sixty-five years of age. He was the author of numerous articles in Roscher's *Lexikon der Mythologie*, the *Jb. Arch. I.*, and other periodicals, of *Archäologische Studien zu den Tragikern* (1890), a *Griechische Mythologie* (1895), and a small illustrated work on Pompeii. He published (1889, 1890) collections of illustrations to Homer and Ovid, and edited the new edition of Guhl and Koner's *Das Leben der Griechen und Römer*. He had recently finished a German translation of the *Guida del Museo di Napoli*, and was at work on an edition of the caricatures of Pierleone Ghezzi. (S. R., *R. Arch.* XIV, 1909, p. 277.)

Ludwig Friedländer.—The author of the *Sittengeschichte Roms* and of excellent annotated editions of Juvenal, Petronius, and Martial, Ludwig Friedländer, died at Strassburg in December, 1909, in his eighty-sixth year. In his special field, the antiquities and literature of imperial Rome, his learning was exceptional. (S. R., *R. Arch.* XIV, 1909, p. 463.)

François Anatole Gruyer.—The keeper of the Musée Condé at Chantilly, François Anatole Gruyer, died October 27, 1909, at the age of 48 years. He was keeper of paintings in the Louvre, from 1881 to 1889. His best works are *La peinture au château de Chantilly; les Quarante Fouquet; les portraits de Carmontelle*. His other works are still of value, though somewhat antiquated. He belonged to the pre-Morellian school of critics. (S. R., *R. Arch.* XIV, 1909, p. 462.)

Jean Paul Lambros.—Jean Paul Lambros, archaeologist and antiquary, died at Athens, May 20, 1909. He was born at Corfu in 1843 and studied at the University of Athens and in Florence. He devoted himself especially to Greek numismatics, publishing many articles in that field. In 1891, the first part of his *Ἀρχαῖα Ἑλληνικὰ νομίσματα*, dealing with the coins of the Peloponnesus, appeared. He was still engaged upon the continuation of this work at the time of his death. (*Le Musée*, VI, 1909, p. 159.)

Johanna Mestorf.—Fräulein Johanna Mestorf, until 1908 director of the Schleswig-Holstein Museum, died recently at Kiel, aged eighty-one years. She was known as authoress of numerous works on the antiquities of northern Europe and as translator of Undset's work into German. In 1899 she received from Wilhelm II the title of Professor, being the first woman in Germany to bear this title. (S. R., *R. Arch.* XIV, 1909, p. 278.)

William Alfred Packard.—William Alfred Packard, Professor of the

Latin language and literature at Princeton University, died December 2, 1909. He was born at Brunswick, Maine, in 1830, graduated at Bowdoin College and Andover Theological Seminary, and studied at the University of Göttingen. He revised the *History of Greece* by Curtius. (*Nation*, December 9, 1909, p. 578.)

Robert von Schneider.—By the death, October 24, of Robert von Schneider (1854–1909), keeper of the Museum of Antiquities at Vienna, professor of classical archaeology, and head of the Austrian Archaeological Institute, Austria loses another distinguished archaeologist. His published works—unfortunately not numerous—relate chiefly to the contents of the museum of Vienna. (*S. R.*, *R. Arch.* XIV, 1909, p. 462; *Arch. Anz.*, 1909, p. 346.)

Gregory G. Tocilescu.—October 2, 1909, occurred the death of Gregory G. Tocilescu, Professor in the Faculty of Letters at Bucharest, aged 64 years. He was an indefatigable worker and published numerous monographs and articles on Roumanian archaeology. (*O. TAFRALI*, *R. Arch.* XIV, 1909, p. 460.)

Henri Weil.—The death is announced at Paris of Henri Weil, the classical scholar. He was born at Frankfort in 1818, was educated at Heidelberg, and in 1848 became a naturalized French citizen. He was a member of the Académie des Inscriptions, and held several academic appointments in the Université de France. Among his books may be mentioned *Études sur le drame antique*, *Études sur l'antiquité grecque*, *Études de littérature et de rythmique grecque*, and two editions of Aeschylus. (*Nation*, November 25, 1909.)

Franz Wickhoff.—Franz Wickhoff, the author of the *Wiener Genesis*, who gave new life and a new aspect to the study of Romanesque art and made valuable contributions to the history of the art of the Renaissance, was born in 1853 and died in 1907. (*S. R.*, *R. Arch.* XIII, 1909, p. 417.)

SERVIA.—**Prehistoric Remains.**—In *Mitt. Anth. Ges.* XXXIX, 1909, pp. 163–177 (6 figs.), S. TROJANOVIĆ calls attention to a number of prehistoric monuments in Serbia not previously known. Near the village of **Votnjak** there is a cromlech; at **Bojnik** a sacrificial stone 1.10 m. long, and 0.81 m. wide, cut with grooves; and near **Lozane** three stones with cup-marks. Of these, one has fifty-six holes, another fifty-seven, and the third twenty-six holes. Menhirs are rare in the whole Balkan peninsula; but 474 dolmens are known in Thrace, sixty-four of which have two chambers.

TAKHT-I-BAHI.—**Scenes from the Life of Buddha.**—The most important of Dr. Spooner's recent discoveries at Takht-i-Bahi in the Peshawar Valley, was a square stone pierced through the centre, which had evidently been the pediment of a stupa. The stone is a peculiar greenish one, and on the four sides are scenes from the life of Buddha. So far as Dr. Spooner is aware, a more perfect specimen of this cycle of the Mahaparanirvana does not exist. Among other finds near Peshawar is that of the headless figure of a goddess with four arms. This number of arms is unusual in Gandhara art. The upper pair of arms is lost, but the lower ones hold a spear and well-defined wheel respectively. The drapery of the figure is described as typically Greek. (*Athen.* October 2, 1909, p. 402.)

TURKEY.—**Acquisitions of the Imperial Ottoman Museum in Constantinople.**—Among the additions made to the Imperial Ottoman

Museum at Constantinople in 1908 are the following: A funeral-banquet relief of the first half of the fifth century B.C., from Thasos; four Lydian inscriptions; works of art from Miletus, among them the Apollo and Muses; terra-cottas from Amisus, including some large and very fine masks and busts, animals, figures and groups and fragments of hand-made polychrome rhytons in the form of ox, goat, and ram's heads, said by L. Curtius to be Gallic; Assyrian and Parthian reliefs and other remains; Hittite inscriptions and reliefs from Asia Minor and Syria. (G. KARO, *Arch. Anz.* 1909, cols. 84-86.)

EGYPT

THE EXCAVATIONS OF THE METROPOLITAN MUSEUM.—

In *B. Metr. Mus.* IV, 1909, pp. 119-123 (7 figs.), A. M. L(YTHGOE) reports upon the excavations carried on by the Metropolitan Museum of New York in 1909, at the pyramids of Lisht and in the Oasis of Kharga (see *A.J.A.* XI, p. 344; XII, pp. 84 and 354; XIII, pp. 71-72 and 104-105). The twelfth dynasty cemetery west of the pyramid of Amenemhat I was further explored and about fifty tombs containing pottery, ornaments, etc., typical of that dynasty found. The greater part of the time was given to the excavation of the causeway and temple of the pyramid of Sesostris I. The former was cleared for one hundred metres. It was of limestone, and consisted of a roofed passage 2.60 m. wide, the side walls painted a mottled red and black to imitate granite, and decorated above with colored reliefs representing fishing scenes, captives taken in foreign wars, etc. At intervals of ten metres on either side of the passage were niches in which there stood originally Osiride statues of the king. Trenches at different points show that this causeway extended to the level of the Nile Valley. At the temple proper the work began on the south side of the entrance-hall and was gradually carried westward to the rear of the temple, which proves to be of the same general plan as the pyramid temples of the Old Empire. A large amount of relief sculpture from the temple walls, of excellent modelling and with the colors remarkably well preserved, has been recovered. It is the most important material yet discovered for illustrating the sculpture in relief of the Middle Empire. At the Oasis of Kharga excavations were continued in the Christian necropolis and in the ancient city of Hibis. A number of the larger tomb chapels were cleared in the necropolis and several new streets with their houses at Hibis. Many small altars, plaster statuettes, stucco decorative figures, etc., were found, as well as a wall-painting with three deities on horseback. The skulls have been studied by A. HRDLICKA, who shows that those found in the tombs at Lisht belonged to Egyptians at the period of the highest physical development attained by the race. Only four broad, foreign skulls were found out of over two hundred. The graves at Kharga show Egyptians of small stature with considerable foreign admixture. *Ibid.* pp. 199-201 (6 figs.), H. E. W. describes the temple at Hibis which will be excavated during the present winter. The main structure was built in the reign of Darius I (521-486 B.C.) and is in a remarkably good state of preservation. The colors on the inside walls are in many places still intact.

GRAECO-ROMAN DISCOVERIES.—The Graeco-Roman finds in Egypt in 1908 were not large in proportion to the amount of work done.

The German Papyrus Expedition, returning to the Fayum, finished examining the necropolis at **Abusir-el-mäläk**. The graves, largely destroyed, were of late Roman times and poorly furnished, yielding no papyrus. In one grave, within a lidless wooden coffin, was an inner coffin of linen cartonnage, gilded, in the form of a young woman, with face, hair, garments, and ornaments perfectly represented. In the ruins of **Philadelphia**, on the north edge of the district, the rectangular street plan, the brick house-walls ten or twelve feet high, and the inner construction of the cellar-like basements of the houses, were found preserved. Most of the movable property seems to have been carried away when the city was abandoned, but where this was not the case, papyrus manuscripts were found with the other objects of furniture. Some were kept in wooden chests. Those from the house of a veteran, Diogenes Turbon, are family documents from the time of Commodus to that of Alexander Severus. A large find of ostraca, of Ptolemaic date, consists of school exercises, receipts, etc. Most of the objects here are of the second and third, some of the fourth century A.D. There is nothing Coptic or Arabic, and only one Christian symbol, a red cross painted on a wall. At **Alexandria**, the Ptolemaic cemeteries at the east end of the city have yielded painted and sculptured grave-stones, gilded terra-cottas, weapons, pottery, especially black-glaze ware, etc. Another Christian *hypogeum* was found with thirty-four separate burial chambers. Two granite columns are conjectured to belong to the stadium which adjoined the Serapeum on the southwest. A Roman marble sarcophagus with bacchic scenes in relief is of some note. (F. ZUCKER, *Arch. Anz.* 1909, cols. 176-189; 4 figs.)

ABYDOS.—**The Excavations of 1909.**—In *Ann. Arch. Anth.* II, 1909, pp. 125-129 (3 pls.), J. GARSTANG makes a preliminary report of his discoveries at Abydos in the spring of 1909. The objects found belong to the second, sixth, eleventh, twelfth, and eighteenth dynasties and to the Ptolemaic period. Archaic seal impressions furnish new material for the chronology of the kings of the second and third dynasties. The opening of several hundred tombs of the fifth and sixth dynasties provides a series of well-established types of objects of that period. An undisturbed tomb of the sixth dynasty contained a coppersmith's crucible, melting-pot, dishes, knife-blades, chisels, etc. Worked vases of alabaster formed the principal discovery of the eleventh dynasty; while two bronze daggers were the most important objects from the twelfth dynasty. A large tomb of the eighteenth dynasty consisting of several vaulted chambers yielded some interesting gold jewelry, a rare figure vase of alabaster in which the handle is in the form of a child, and a terra-cotta vase in the shape of a kneeling girl with a child upon her back and a drinking-horn on her knee. The seal impressions of the second dynasty are discussed by P. E. NEWBERRY, *ibid.* p. 130 (4 pls.). The names which predominate are Kha-Sekhemini and Neter-Khet.

BEHEN.—**The Excavations of 1908-09.**—In its third campaign (1908-09), the Egyptian expedition of the University of Pennsylvania, directed by D. Randall-MacIver, carried on excavations at Behen, a short distance south of Wady Halfa. The town wall dating from the eighteenth dynasty was traced for its whole circuit of about a mile. There was a ditch seven feet wide, cut in places down to bed rock, with a low wall on each side, and, further back, the main wall. This was of brick twenty-four feet

thick with heavy buttresses and interior chambers. Many tombs of the twelfth and of the eighteenth dynasties were opened, the latter being of two kinds, — either well-tombs consisting of a shaft six to twenty feet deep connected with which were one to seven rooms; or gallery-tombs, in which a level approach or a descending stairway hewn in the rock led to a series of chambers. All of the tombs had been plundered in antiquity. Those of the twelfth dynasty were inside the town walls, and had for the most part remained covered since ancient times, so that the brick superstructures, which have disappeared elsewhere in Egypt, were frequently preserved. The most important finds were: (1) a well-preserved iron spear head of the twelfth dynasty, the oldest known example of worked iron in existence; (2) a remarkable collection of jewelry including three necklaces and two bracelets of plain gold beads, and a small cylindrical gold box containing a charm and fastened to the wrist by three strings, one of gold beads, one of gold and amethyst, and one of green feldspar, all dating from the twelfth dynasty; (3) also a long necklace of gold and amethyst beads, the ends formed by small couchant lions, another necklace of plain gold beads, and a third of gold beads in the shape of hawks and of Hathor heads; two bracelets of gold wire, and a gold ring set with a scarab of Amenemhat III, all from a tomb of the twelfth dynasty in which the roof had collapsed soon after the burial; (4) three necklaces, one of gold and amethyst beads, another of plain gold beads, and a third of gold beads shaped like cowrie-shells and lions, besides two gold ear-rings, of the eighteenth dynasty; (5) a considerable amount of pottery from the tombs of the eighteenth dynasty including a number of stirrup cups probably from Crete; (6) a bronze sword with ivory handle; (7) many objects of metal including bronze tools and one of iron probably used in cutting out the rock tombs; (8) two wooden mallets also used in this work; (9) a large number of scarabs including two with the names of unknown kings. All these objects are in the University Museum in Philadelphia. (D. R. M. and C. L. W. *The Eckley B. Coxe, Jr., Expedition to Nubia. Season of 1908-09.* Philadelphia, 1909, the University Museum. 4 pp.)

THE ETBAI DISTRICT. — **Some Unpublished Inscriptions.** — In *S. Bibl. Arch.* XXXI, 1909, pp. 247-254 (5 pls.), F. W. GREEN publishes, with notes and a description of the route followed, some inscriptions copied by him in the region near El Kab in 1902.

MEROË. — **Greek Inscription of a King (?) of Axum.** — In *S. Bibl. Arch.* XXXI, 1909, pp. 189-203 (4 pls.), A. H. SAYCE publishes an inscription in Greek letters of the fourth or fifth century A.D., found among the ruins of Meroë. The inscription furnishes evidence that the kings of Axum extended their power as far as the Nile. He also announces the finding of ruins which fix once for all the site of Meroë as identical with the mounds of Segêk, and presents some hitherto unpublished Meroitic hieroglyphic inscriptions.

BABYLONIA AND ASSYRIA

ASSUR. — **A Report on the Excavations.** — At the November (1908) meeting of the Berlin Archaeological Society, W. ANDRAE sketched the results of his five years' excavation and study on the site of ancient Assur. The palace remains, though older than those of Nineveh, are not so splendid

nor so well preserved; on the other hand, the Assyrian temples heretofore excavated were not rightly understood, their private houses had not been studied at all, and of fortifications, only late examples were known. In these three branches of architecture, as well as in all classes of smaller finds, entirely new and ample material is now provided at Assur. (*Arch. Anz.* 1909, cols. 35-36.)

SYRIA AND PALESTINE

GEZER. — **Supplementary Details of Excavations.** — In *Pal. Ex. Fund.*, XLI, 1909, pp. 183-189 (pl.; 3 figs.), R. A. S. MACALISTER presents the plan and detailed account of a house in Rujm 'Abd Allah of the Hellenistic period, mentioned in his previous report; the house is important as being, with one exception, the most complete residential building yet found. Macalister also describes an early olive-press recently discovered, and reports as the only new discovery of importance since the last statement, a small bronze weight, which may, from its inscription, prove of importance in discussing the problem of the jar-handles with "royal stamps."

HIERAPOLIS SYRIAE. — **Inscriptions and Other Antiquities.** — In *B.S.A.* XIV (session 1907-08), pp. 183-196 (3 figs.), D. G. HOGARTH publishes sixteen inscriptions (thirteen Greek, three Latin), and describes the site and the few antiquities of Hierapolis (now Mumbij) in Syria. One inscription is the thirteenth (possibly fourteenth) milestone toward Aleppo. The imperial honors date it in 197 A.D. It was found at the village of Arimeh. Many squared stones and mouldings lie about on the site of Hierapolis. A much-defaced recumbent lion, a headless draped statue of a man, and a stele with five busts in relief are the only sculptures mentioned. Several terra-cottas, representing the Dea Syriae, are published. The inscriptions are chiefly late epitaphs.

KHURBET SHEMA. — **A Megalithic Structure.** — In *Pal. Ex. Fund.*, XLI, 1909, pp. 195-200 (2 pls.; 2 figs.), R. A. S. MACALISTER describes the megalithic structure known as *Sarir Nebi Shem'a*, "The Throne (or Bedstead) of the Prophet Shammai," with the series of tomb-chambers underneath, near the ruins called Khurbet Shem'a, a village of the Roman period near Safed, the ruins of which are also described.

PALMYRA. — **An Altar and Tesserae.** — In *Eph. Sem. Ep.* III, 1909, pp. 32-36 (pl.; fig.), M. LIDZBARSKI publishes a photograph of an altar bearing an inscription discovered by Lamer and Jäckel in the fall of 1907, and three tesserae acquired by the same explorers at the same time.

ASIA MINOR

A JOURNEY THROUGH CILICIA. — At the March (1909) meeting of the Archaeological Society of Berlin, E. Herzfeld and S. Guyer presented some results of a journey through Cilicia in the spring of 1907. Herzfeld took *Olba* for his theme, with its interesting ruins, including a lofty tower, a theatre (built by Marcus Aurelius and Lucius Verus), a temple to Tyche, and especially the monumental Zeus temple, with thirty of its Corinthian columns still standing intact, the building of which Herzfeld ascribes to Seleucus Nicator (306-281 B.C.). Guyer spoke on the early Christian ruins of *Meriamlik*: (1) the basilica of St. Thecla (whose wor-

ship replaced the local cult of Athena), built by the Byzantine emperor Zeno (474-491 A.D.); only the apse of this stately structure has survived the frequent restorations and alterations of later periods. Below the basilica was found the sacred cave, where, according to the legend, St. Thecla dwelt during the last years of her life, until, pursued by her enemies, she vanished into the earth. This crypt consists of a number of chambers, dating from Zeno's reign, but to the south of it a basilica-like structure with Doric columns and terminating in an apse was found, which Guyer holds to be of much earlier date. He thinks it may have been the oldest Christian church of Seleucia, its very existence having given rise to the legend of St. Thecla's death. (2) A Byzantine church of the domed basilica type, the architectural details of which go to prove that this type of church dates from pre-Justinian times, as was maintained by Strzygowski (in his *Klein-Asien*). A fuller report of this interesting journey is promised in a special publication. (*Berl. Phil. W.* XXIX, 1909, Nos. 41 and 42.)

BALUKLAOU.—**A Dedication to Zeus.**—In the London *Times*, November 11, 1909, W. M. CALDER publishes the following Greek inscription found by himself and Sir W. M. Ramsay last summer at Baluklaou, one day's ride south from Lystra: Τούης Μ[α]ρκείνος ὁ | καὶ Ἀβάσκαντος καὶ Βατάσις Βρετασίδης Ἑρμῆν | Μέμιστον | κατὰ εὐχὴν | ἐπισκευάσα[ν]τες σὺν ὁρολογίῳ ἐκ τῶ[ν] | ἰδίων (ἀν)αλωμ[άτων ἀνέστη]σαν Διὶ [Ἡλίῳ]. He dates it in the first century A.D., and thinks it throws light upon the visit of Paul and Barnabas to Lystra because of the association of Zeus and Hermes.

EPHESUS.—**Recent Excavations.**—In the autumn of 1908, the Austrian expedition cleared the Odeum, a typical Roman theatre, with sunken orchestra and low stage; adjoining it, on the south, a long colonnade which had the Ionic capitals with bulls' heads at the sides, and intercolumniations originally very wide, but later divided by inset columns; still further south, across a large open space, a water tower built at different times, the last restoration by Constans and Constantius being well preserved; and the foundations of a round building called the grave of Luke, which had false windows, and which was in Christian times turned into a chapel, or the crypt of a church. (*Arch. Anz.* 1909, col. 87.) The colonnade is discussed at greater length by W. WILBERG in *Jh. Oest. Arch. I.* XII, 1909, pp. 207-214 (11 figs.). It was 5.70 m. wide, and about 50 m. of it has been uncovered. As yet no part of the entablature above the architrave has been found. It dates from the first century B.C. The capital with the bulls' heads found by J. T. Wood belonged to this building.

MILETUS.—**Excavations in 1908.**—In 1908, the expedition of the Berlin museums excavated in the Hellenistic-Roman city some baths which typify the transition from a Hellenistic gymnasium to Roman baths, and the large South Market-place, which had in the Greek time the form of a horseshoe with a street and a row of chambers along the open side, but was changed in the Roman epoch to a closed agora; also, in the same quarter, a late Roman temple of Sarapis and Isis, which had bust-reliefs of gods in the ceiling panels of the pronaos, and a cella like an early Christian basilica, with two rows of smooth monolithic columns. The Hellenistic city wall was followed to the southeast, where there is a gate and where it is cut by a Roman aqueduct on arches. A further unexpected extension of the old city of Miletus has been traced by house-walls and sherds of the sixth century.

In the early part of 1909, further excavations at the great temple at Didyma resulted in the recovery of a considerable part of the plan and construction, as well as of the decorated members. (*Arch. Anz.* 1909, cols. 88-90.)

SAMOS. — Excavations. — Dr. Wiegand of the Berlin Museum has made a compact with the prince of Samos by which the Royal Museum will be permitted to carry on excavations in Samos for ten years. The funds will be contributed from private sources, and twenty thousand marks have already been subscribed for the excavation of the Heraeum. (*Nation*, December 16, 1909, p. 604.)

TRALLES. — An Inscription relating to the Aqueduct. — In *R. Ét. Anc.* XI, 1909, pp. 296-300, M. PAPPACONSTANTINOY publishes an inscription found at Tralles in 1905 by Turks seeking stones for street paving and now lost. It records the building of the aqueduct by the proconsul Montius, and probably dates from the fourth century A.D. It reads:

Καὶ τὸδε σῆς ἀρετῆς πανεπίφρονος ἔξοχον ἔργον,
 Μόντιε κυδῆεις, ἀνθυπάτων ὕπατε,
 Ὃς δολικοῖς ἔργοισι κατ' οὐδεὸς ὕδατος ὀλκὸν
 Κείμενον ὀρθώσας ἄστυ τὸδ' ἡγλαΐσας,
 Καὶ ποταμὸν σταδίοισι τριηκοσίοισιν ὀδεύσας,
 Οὖρεα τετρήνας, ἐς πόλιν ἡνύσας.
 Τοῦνεκα Τραλλιανῶν ἐπὶ ἔργῳ στήσέ σε βουλῇ,
 Σωτήρρα Κτίστην Μόντιον ἄζομένῃ.

GREECE

THE WORK OF THE GREEK ARCHAEOLOGICAL SOCIETY IN 1908. — The recent work of the Greek Archaeological Society has been largely that of restoration and preservation, the most important undertakings since the actual rebuilding of the Erechtheum being the beginning of the same work for the Propylaea of the Acropolis, the partial erection of the Propylaea at Epidauros, in the museum there, and the theoretical reconstruction of the tholos of Epidauros. The last-named building consisted of a circular wall pierced with door and windows, between two concentric rings of columns, the outer Doric and the inner Corinthian, and had a domed roof over the cella covered by a flat conical roof reaching over the whole. The use of the underground passages is still unknown. New discoveries, though less striking, are of some historical value. They include archaic temples, Mycenaean and pre-Mycenaean graves, etc., in Naxos, Sunium, Thessaly, Aetolia, Acarnania, Cephallenia, and other parts of Greece. An undisturbed late-Mycenaean burial ground in Cephallenia gives a good picture of the humbler life of that time. (*G. KARO, Arch. Anz.* 1909; cols. 105-108; 4 figs.)

ANDROS. — Fragments of Inscriptions. — Fragments of inscriptions from Andros are reported on by F. HILLER VON GAERTRINGEN in *Ath. Mitt.* XXXIV, 1909, pp. 185-187.

ARGOS. — New Fragments of an Inscription. — In *B.C.H.* XXXIII, 1909, pp. 171-200, W. VOLLGRAFF gives a revised reading of an inscription of the third century B.C. relating to changes and additions at the sanctuary

of Apollo (published by him, *ibid.* XXVII, 1903, p. 270), and adds two new fragments of the same stele on which is recorded an oracle given to the Messenians between 146 and 93 B.C. This throws light on the inscription relating to the mysteries of Andania (Dittenberger, *Syll.* No. 653). Several new names of Argive phratries occur, bringing the number of names known up to twenty-eight. Pages 182-200 are devoted to a discussion of these phratries.

ATHENS. — Acquisition of Coins by the National Museum. — In *J. Int. Arch. Num.* XI, 1908 (published 1909), pp. 249-328 (pl.), I. N. SVORONOS reports the acquisition of 2973 coins by the National Numismatic Museum of Athens for the year ending August 31, 1908. 1410 of these are described.

Three Inscriptions. — In *Ath. Mitt.* XXXIV, 1909, pp. 61-68, J. SUNDWALL publishes three inscriptions. (1) A decree in honor of the officials of a prytany, to be dated about 180 B.C. (2) A list of domains of Athena Polias, 343-342 B.C. (3) Fragment of a decree in honor of a citizen, later than 188-187 B.C.

The Italian Archaeological School. — The organization and scope of the recently founded Italian archaeological school at Athens is set forth in the *regolamento* of the school published in *Boll. Arte*, III, 1909, p. 278.

CARDITZA. — A Graeco-Roman Tomb. — A rich tomb has been discovered near Carditza containing a large number of silver vases with applied design, as well as an abundance of gold ornaments and copper utensils. They date, apparently, from the first century B.C. (*Hellenic Herald*, III, 1909, p. 163.)

CRETE. — ARCHANES. — An Inscribed Minoan Utensil. — In *Ἐφ. Ἀρχ.* 1909, pp. 179-196 (6 figs.), S. A. XANTHOUDIDES publishes a small, shallow, heart-shaped libation-cup (?) of white alabaster, found at Archanes, about three miles south of Cnossus. The inscription running around the brim contains twenty-two characters, and a few others have been effaced. The forms of these characters, nearly all of which are familiar from other inscriptions of the Minoan age, date the cup at about the eighteenth century B.C., the beginning of the Late Minoan period. Of great interest is the fact that five or six of the characters appear in the same order on the "table of offerings" from the Dictaeon Cave, and four of these, still in the same order, on a steatite cup from Palaikastro; which is strong evidence of the religious character of the inscription, the four characters which appear in all three being perhaps the name of a god.

Remains in Central Crete. — A beginning has been made in tracing the line of settlements along the road which led south from Cnossus to Gortyn. Near Gortyn itself there has been found a pit full of discarded offerings of the fifth to the second centuries. They are chiefly composite lamps, small figures carrying pigs, for Demeter, and terra-cottas of various types which may be copied from statues. Two hours west of Cnossus, at Tylisus, remains have been found which seem to belong to a Late Minoan palace. (*Arch. Anz.* 1909, col. 102.)

CORINTH. — Discoveries in 1908-09. — The Roman road to Sicyon, which passes between the Old Temple and the fountain of Glauce, has been traced. In the outer walls of the theatre, Greek masonry is found below the Roman. Four large reservoirs cut in the rock and covered with arched

vaulting of the time of Periander, lie to the south of the Roman constructions at the fountain of Pirene. An Augustan temple, repaired in the second century, to which belong the Corinthian capitals with lions' heads in the foliage, and an unexplored temple, were found. (*Arch. Anz.* 1909, col. 119.)

DELOS.—**The Excavations of 1908.**—In *C. R. Acad. Insc.* 1909, pp. 397–417 (plan; 8 figs.), M. HOLLEAUX reports upon the excavations at Delos in 1908. The ancient port was examined and found to be an artificial harbor with breakwaters, etc. (Fig. 1). A line of quays 145 m. long runs

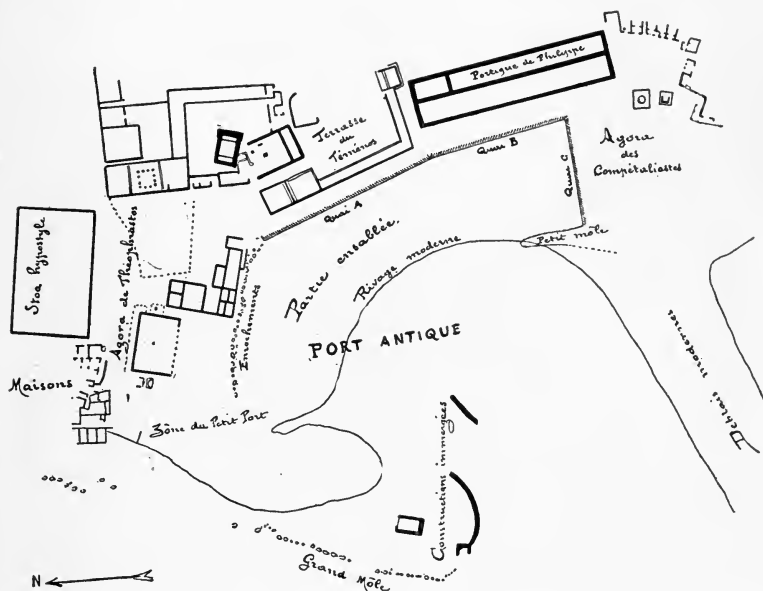


FIGURE 1.—THE PORT OF DELOS.

from north to south, joined at their southern end, at right angles, by another quay 50 m. long. At their northern end is the Agora of Theophrastus, which was found to be in part earlier than the time of Theophrastus. The foundations of two large buildings, probably commercial, were uncovered. West of the Hypostyle Monument a small section not previously excavated was found to conceal house-walls. This was the southernmost part of the town between the Sacred Lake and the sea. In several places very ancient walls were found accompanied by Mycenaean vase fragments. The course of the Inopus, which must have been a considerable stream in early times, was examined and it was discovered that its waters were stored up and controlled by a system of reservoirs. The excavation of the Temenos of Apollo has now been completed and the following report can be made of its buildings. Of the temples of Artemis the one regarded by Nénot as the later is really much the earlier; while the other was an amphiprostyle, tetrastyle, Ionic temple of the third century B.C. The building to the south, once supposed to be

a *bouleuterion*, has not been identified, but may have been an altar; while the one northeast of the Propylaea and southwest of the Temple of Apollo was probably the *oikos* Ναξίων, and dates from the sixth century B.C. The monument north of the Dionysium probably dates from the archaic period, but has not yet been identified. The site of the Temple of Apollo has been excavated to bed rock and no trace of earlier foundations discovered. Numerous house-walls were found in the Sacred Precinct with Mycenaean, Geometric, and Protocorinthian potsherds. East of the portico of the Artemisium a great quantity of archaic vase fragments came to light similar to those found in the necropolis at Rhenea. About sixty nearly complete vases can be restored. Behind and at the northeast angle of the Great Portico a public fountain was found cut in the rock. It was closed on three



FIGURE 2.—THE FOUNTAIN MINOE.

sides, but on the north had an entrance with six Doric columns. The entablature was of wood. Ten steps led down to the water. An inscription Σπόριος Στερτίνιος Σπορίου Νύμφαις Μινούσιν identifies it as the *κρήνη Μινώη* (Fig. 2). It seems to have been constructed in the fifth century B.C. and rebuilt in the second. In clearing out the fountain a bronze relief of Hellenistic date, representing a sacrifice to Hecate (Fig. 3), was discovered. The only other piece of sculpture brought to light during the year was the torso of an archaic Apollo. Seventy-two inscriptions were found.

A Dedication to "Palestinian Astarte."—In *C. R. Acad. Insc.* 1909, pp. 307-317 (fig.), C. CLERMONT-GANNEAU publishes a round altar found at Delos in 1907 bearing two inscriptions. The first reads Δὲ Οὐρίῳ καὶ Ἀστάρτῃ Παλαιστίνῃ | καὶ Ἀφροδίτῃ Οὐρανίᾳ, θεοῖς ἐπηκόοις; | Δάμων Δημητρίῳ Ἀσκαλωνίτῃς, | σωθεὶς ἀπὸ πειρατῶν, | εὐχὴν. The second, a little

below, reads, Οὐ θεμιτὸν δὲ προσάγειν | αἷγιον, ὑἱκὸν, βοὸς θηλείας. This is the first mention of Palestinian Astarte in a Greek inscription.

GONNUS.—*Miscellaneous Antiquities.*—In *Ath. Mitt.* XXXIV, 1909, pp. 80–84 (fig.), H. G. PRINGSHEIM publishes a grave stele, two grave inscriptions, and three votive inscriptions from the site of the ancient Gonnus



FIGURE 3.—SACRIFICE TO HECATE: BRONZE.

in Thessaly. The relief on the stele represents a youth who holds a dove, and is accompanied by three children.

KRIKOUKI.—*Proxenia Decree of the Boeotians.*—In *Ἐφ. Ἀρχ.* 1909, pp. 55–56, S. N. DRAGOMES publishes a proxenia decree of the Boeotians in honor of one Polyxenus, found at Haliartus and now at Krikouki.

LACONIA.—*Topography.*—In *B. S. A.* XIV (session 1907–1908), pp. 161–182 (map; 5 figs.), A. J. B. WACE and F. W. HASLUCK describe, with some discussion, the historical geography and the antiquities of the southeastern promontory of Laconia from Aeriae on the Laconic Gulf to Epidauros Limera. A few inscriptions are published. At Neapolis-Vatika are some sculptures of Roman date.

LAKE COPAIS.—*A Hoard of Bronze Coins.*—In December, 1908, a hoard of 1549 bronze coins was found in the middle of what was once Lake Copais. All but two are Boeotian. The coins were probably sent to the

Boeotians by Antigonus Doson about 220 B.C. to enable them to make the march to the Isthmus. (I. N. SVORONOS, *J. Int. Arch. Num.* XI, 1908 (published 1909), pp. 230-232.)

LARISSA. — A Vaulted Tomb. — In 'Εφ. 'Αρχ. 1909, pp. 27-44 (3 figs.), A. S. ARVANITOPOULLOS describes a very interesting vaulted tomb of the third century B.C. excavated by him near Larissa in 1906. Its external dimensions are: length 3.77 m., width 2.58 m., height 2.95 m. It is built of poros stone in regular ashlar courses, with a true semi-cylindrical arch for roof. The door was closed by a marble slab. The ashes of the occupant were probably placed in an urn set in a hollowed block of stone, which latter was found in the tomb. The whole structure was probably then completely and permanently covered by a mound of earth. This is the first tomb of this type to be discovered in Thessaly. Several have been found in Macedonia, where this prehistoric type seems to have been revived and later adopted generally in Greece in the Macedonian era. Plato's description of the magnificent burial of the Rulers of his State (*Laws*, XII, 947, b-e) was probably based on a similar burial he had seen in Thessaly.

LEUCAS. — Excavations in 1908. — A fifth "Letter on Leucas-Ithaca" contains the results of Professor Dörpfeld's excavations in 1908. A visit of the German Emperor and Empress (May 4) is described at some length, and in connection with this a topographical description of Leucas and the neighboring coasts and islands is given. The excavations in the plain of Nidri were difficult, on account of the ground-water, but additional walls of the large building regarded as the palace were found and examined. Graves of various shapes and dates were found; the most striking, however, are near the "palace." These graves are rectangular, but are enclosed in paved circles resembling threshing floors. Five such circles were found near the palace. The largest is 9.20 m. in diameter and encloses a rectangular grave 1.80 × 1.50 m. None of the circles could be completely uncovered on account of olive trees which grow over them. The objects found in the graves are not striking, but are sufficient to establish their date in the second millennium B.C. At the southern foot of Mt. Skaros a family burial-place containing a dozen separate graves was found. As there were walls both above and below, the continuity of the settlement and the relative date of the graves were clearly indicated. Everything, the date, the pottery, the weapons, the mode of burial, points to the identity of those who dwelt here about 1500 B.C. and later with the Achaeans of Homer. In and near the chapel of Hagia Kyriaki several fragments of terra-cottas and a few entire specimens were found. Some are primitive figures, some female heads of the classic period, some pieces of small reliefs; one relief represents a woman who holds out her hand to another (almost entirely broken away) and seems to be dancing with her. Perhaps this was a shrine of the nymphs. A review of publications on the Leucas-Ithaca question is appended. (*Fünfter Brief über Leukas-Ithaka: Die Ergebnisse der Ausgrabungen von 1908.* Von Wilhelm Dörpfeld. 47 pp.; 4 pls.; 4 figs. 8vo. Dated Leukas, May, 1909, and finished, Pergamon, October, 1909. Privately printed.)

LIVATHO. — A Mycenaean Necropolis. — In *C. R. Acad. Insc.* 1909, pp. 382-391 (7 figs.), P. KAVVADIAS reports upon his excavations at Livatho, near Masara Kata, on Cephalonia in 1908. In addition to the four Mycenaean tombs previously discovered, he found twelve more, for the most

part intact, containing forty-seven graves cut in the rock. This cemetery, therefore, contained sixteen tombs with eighty-three graves cut in the rock, and one domed tomb. Objects of gold, bronze, stone, glass, two pieces of a golden girdle, arrow-heads, stirrup-cups, and vases of local shape came to light. Many skeletons, with the skulls in perfect condition, were also found. All the bodies were interred, not cremated. Kavvadias would date the graves between the fifteenth and twelfth centuries, although some of them may be earlier. Near by a number of holes about 1 m. deep and 1 m. in diameter cut in the rock were probably used for the storage of grain, and point to the existence of a prehistoric town in the vicinity.

OLYMPIA. — Discoveries in 1909. — At Olympia, the terrace of the Treasuries was found to be an artificial level, covering part of the prehistoric settlement (see *A.J.A.* XIII, p. 357). This village had a considerable extent and duration, but is wholly within the Stone Age. Two curved walls hitherto interpreted as part of an altar of Zeus, are only two of its apsidal houses. An inundation buried it in a layer of sand, and on this the earliest beginnings of the sanctuary were laid, but after how long an interval is not evident. A prehistoric settlement on a hill about a kilometre east of Olympia, where a few Greek sherds were found, but nothing Mycenaean, confirms the tradition that this was the site of Pisa. (*Arch. Anz.* 1909, col. 121.)

ORCHOMENUS. — An Arcadian Synoecism. — An inscription recording the terms under which the Euaemnians were made citizens of Orchomenus in Arcadia is published by A. V. PREMERSTEIN in *Ath. Mitt.* XXXIV, 1909, pp. 237–268. The forms of the letters and the use of the Arcadian dialect help to date the document about 300 B.C. The union seems to have been brought about by some force from outside, perhaps by Demetrius Poliorcetes. An Iolaus mentioned in the inscription may be identical with the Iolaus who was one of the lieutenants of Demetrius.

PAGASAE. — Recent Excavations. — Further work by A. S. ARVANTOPOULOS at Pagasae (see *A.J.A.* XII, pp. 103 and 364–365; XIII, pp. 211 and 358) has revealed the foundations of a temple of the fourth century B.C. on the Acropolis. The architectural fragments of Pentelic marble found in the vicinity are so fine that they are compared by the excavator with those of the Erechtheum. A number of painted stelae were found, including the lower half of the one with the remarkable death-bed scene. It had been used in a Turkish building and the painted design was almost gone, but below was carved this inscription:

Δυπρὸν ἐφ' Ἡδίστῃ Μοῖραι τότε νῆμ(α) ἀπ' ἀτράκτων
κλῶσαν, ὅτ(ε) ὠδίνος νύμφη ἀπηντίασεν·
σχελίῃ· οὐ γὰρ ἐμελλε τὸ νήπιον ἀνκαλιεῖσθαι,
μαστῶ τ(ε) ἀρδεύσειν χεῖλος ἐοῖο βρέφους.
ἐν γὰρ ἐσεῖδε φάος καὶ ἀπήγαγεν εἰς ἓνα τύμβον
τοὺς δισσοὺς, ἀκρίτως τοῖσδε μολοῦσα, Τύχη.

(*Hellenic Herald*, III, 1909, p. 163.)

RHITSÓNA. — Excavations in 1907 and 1908. — Boeotian Pottery. — In *B.S.A.* XIV (session 1907–1908), pp. 226–318 (9 pls.; 22 figs.), R. M. BURROWS and P. N. URE describe their excavation of numerous graves at Rhitsóna, in Boeotia, between Thebes and Chalcis (see *A.J.A.* XIII, p. 81).

The chief importance of these excavations lies in the fact that the contents of each grave has been kept carefully separate, so that the vases can be studied in their proper relations. Rhitsóna is probably the ancient Myclessus. The place was important in the sixth century B.C., but not in later times. A large part of this article consists of a careful catalogue of graves and their contents. From this it appears that the "Boeotian kylix style" flourished at least until the year 500 B.C. and that it underwent great changes during the last half of the sixth century. Boehlau (*Jb. Arch. I.* 1888, pp. 325-364) ascribes some vases and figurines of this style to the seventh century. This is now no longer possible. The development of the style between 550 and 500 may have been affected by Corinthian pottery. Two classes are distinguished, class I about 550 B.C. or slightly later, and class II not much before 500 B.C. In *J.H.S.* XXIX, 1909, pp. 308-353 (4 pls.; 15 figs.), the same authors publish a supplementary article describing the contents of four more tombs. The great number of vases upon this site (over 800) and the conditions under which they were found, make dating possible. Forty inscriptions incised on the black glaze ware are discussed. They include three signatures of the Athenian potter Tisias with the Boeotian alpha; two owners' names, 'Ονασιδαό εἰμι and 'Αγν . . . νός εἰμι; and one καλός name written in the Boeotian or Chalcidic alphabet.

SPARTA. — Excavations in 1908. — In *B.S.A.* XIV (session 1907-1908), pp. 1-158, is a report of the excavations at Sparta carried on by the British School at Athens in 1908. R. M. DAWKINS gives (pp. 1-3) a brief account of the season's work and a summary of its results. He also describes and discusses (pp. 4-29; 2 pls.; 10 figs.) the sanctuary of Artemis Orthia. Part of the foundations of the Roman amphitheatre were removed; many carved ivories, lead figurines, and fragments of pottery were found, as was also an early Doric capital, probably from the sixth-century temple. Remains of the primitive temple were discovered south of the sixth-century temple. Apparently it had a row of pillars in the centre. It was built of brick and wood resting on a stone foundation, and in plan was even more primitive than the Heraeum at Olympia. In excavating, the strata were carefully observed, so that they can be used in ascertaining dates. The pottery is treated (pp. 30-47; 2 pls.; 10 figs.) by J. P. DROOP. Since the Spartan pottery is strictly local, the style after the Geometric Age is treated under six periods, Laconian I (700-625 B.C.), II (625-600), III (600-550), IV (550-500), V (500-425), VI (425-350). In periods I, II, and III the clay is completely covered by the slip; in IV the slip is of poor quality and is sometimes wanting; in V and VI no slip is used. The vases hitherto known as Cyrenaic fall for the most part into Laconian IV, though some must be placed in Laconian III and V. The archaic terra-cottas are treated by J. FARRELL (pp. 48-73; 8 figs.). They are for the most part rude. Many represent the goddess Artemis Orthia, usually upright, but also enthroned or on horseback. They are classified as "small hand-made human figures," "hand-made figures of animals," "more advanced hand-made seated figures," "moulded figures of enthroned goddesses," "figures of equestrian goddesses," "upright and draped representations of the goddess and *protomai*," "nude female figures," "male figures," "grotesque figures," "miniature masks," and "miscellaneous terra-cottas." The inscriptions are published and discussed by A. M. WOODWARD (pp. 74-141; 6 figs.; 13

facsimiles). Nos. 66-95 are new, and new fragments of Nos. 47, 24, 45, 60, 48, 20, and 19 are published. All of these relate to the *παιδικὸς ἀγών*. Eight other inscriptions (Nos. 1-8), ranging in date from the second century B.C. to the second century A.D., are also published, and the patronomate of the divine Lyeurgus (who was elected patronomos at least eleven times) is discussed at some length. Thirteen inscriptions (Nos. 48-60) were found in excavations along the south face of the late-Roman wall. One of these mentions *γυναικονόμοι* as a state magistracy. Nos. 61-69 are from other sites (acropolis, etc.). These are for the most part, as indeed are the others, of late date and fragmentary. Corrections to *C.I.G.* 1327, 1270, 1354, 1399, 1370, and 1380, copied by Fourmont, are added. Excavations on the site of the Hieron of Athena Chalcioecus are described by G. DICKINS (pp. 142-146; 2 figs.). In general they confirm the results reached by the excavations at that site in 1907. A primitive relief of a standing draped female figure, inscribed *φανξιβιος*, exhibits the principles of Spartan relief visible in the stele from Chrysapha. It may be dated in the second half of the sixth century. Various small objects were found, among them a bronze statuette of the armed Aphrodite, the style of which recalls the school of Praxiteles. A marble head of a satyr is discussed by A. J. B. WACE (pp. 147-148; fig.) and ascribed to the third century B.C. It shows the qualities of the earlier Pergamene statues, but is of Laconian marble, and seems to be the first original work of the so-called Pergamene style found on the mainland of Greece. A hoard of Hellenistic silver coins is described and discussed by A. J. B. WACE (pp. 149-158; 2 pls.). They were found in an earthen vase. They include coins of Thrace (Lysimachus, 321-281 B.C.), Macedonia (Alexander the Great, 336-323 B.C., Demetrius I, 306-283 B.C.), Attica, Laconia, Syria (Seleucus I, 312-280 B.C., Antiochus I, 280-261 B.C., Antiochus II, 261-246 B.C., Antiochus III, 222-187 B.C.), and Egypt (Ptolemy I, 305-285 B.C., Ptolemy II, 285-246 B.C.). The hoard cannot have been buried before 222 B.C., nor very much later. The Laconian coins with the Heracles type may be assigned to Nabis or his predecessors Machanidas (210-207 B.C.), or Lyeurgus (220-212 B.C.), and those with the Apollo of Amyclae on the reverse to Cleomenes III (235-221 B.C.), in spite of different views advanced by Seltman (*Num. Chron.* 1909, pp. 1 ff.).

At the Annual General Meeting of the British School at Athens, October 19, 1909, R. M. Dawkins made a report upon the most recent excavations at Sparta and showed that the goddess was called Orthia simply until a late period. She was a nature deity brought into the country by the invading Dorians, and is depicted as a winged woman fully draped and "supported" by two animals which are sometimes lions and sometimes aquatic birds (*Athen.* October 23, 1909, p. 502). The relation of the temple to the theatre is now clear. The temple, which was Doric distyle *in antis*, as a votive tablet shows, stood in the place of the proscenium. Another tablet shows that the sculptures of the pediment consisted of two lions facing each other with one paw raised. Part of the mane of one of these has been found. The excavators also came across the old precinct wall dating from the ninth century B.C. An inundation of the Eurotas about 700 B.C. buried the whole enclosure in sand, a layer of which separates the later temple from the earlier. The little lead figures of gods, men, animals, etc., are found both above and below the bed of sand. The terra-cotta

masks belong chiefly to the sixth and fifth centuries. At the Menelaum, where Helen was worshipped, two miles southeast of Sparta, remains of a building 79 by 55 feet were found. In one corner was a higher structure, perhaps a domed monument. Many Mycenaean remains came to light, but as yet no tomb. The votive offerings are similar to those found at the temple; and it is argued that the Laconian Helen was originally a nature goddess closely akin to, if not identical with, Orthia. Excavations will be continued upon this site. (*Hellenic Herald*, III, 1909, p. 177; *Arch. Anz.* 1909, cols. 111-115. See also *London Times*, September 25, 1909.)

SYROS. — **A Grave Inscription.** — A grave inscription from Syros is published by N. POLITES in *Ath. Mitt.* XXXIV, 1909, pp. 183-184.

THASOS. — **Various Remains.** — In 'Εφ. 'Αρχ. pp. 1-26 (6 figs.), (cf. *R. Arch.* 1909, pp. 1-14; *A.J.A.* 1909, p. 506), W. DEONNA describes antiquities of Thasos including the old town-wall and two of its gates. He also describes a curious shrine of Pan in the form of a conch-shell, cut out of the solid rock; and the ancient quarries on the promontories Phanari and Bathy; locates the ancient gold-mines (cf. *Hdt.* VI, 47) in the northeastern part of the island; and publishes some 44 inscriptions mostly funereal and very fragmentary. He further emphasizes the need of systematic excavations before it is too late.

THEBES. — **The House of Cadmus.** — In 'Εφ. 'Αρχ. 1909, pp. 57-122 (3 pls.; 20 figs.), A. D. KERAMOPOULLOS gives a preliminary account of his excavations in 1906 in the midst of modern Thebes (see *A.J.A.* XI, 1907, pp. 96-97), where he found foundations of an extensive Mycenaean building (Late Minoan II) which was destroyed by fire in the early years of Late Minoan III. In plan and construction it resembles the Cretan palaces more than it does the Peloponnesian, and seems to have been two, possibly three, stories high. Among the finds that deserve mention were numerous fragments of fine wall-frescoes in various colors, representing human forms, flowers, and other objects, in the style of the later palace frescoes of Knossos, large numbers of Mycenaean vases and vase fragments, and pieces of a beautifully carved marble border probably used to adorn the lintel and jambs of a door. The fact that the site of this burnt palace, situated on the summit of the second of the four hills which formed the ancient Cadmeia, shows no signs of later occupation before the Christian era is proof that the ground on which it stood was held sacred by the Thebans ever after. In all probability then, Keramopoulos has found the palace of which the charred remains were venerated by the Thebans as the palace of Cadmus, destroyed by Zeus when he appeared in all the splendor of his lightnings to the hapless Semele, whose room especially was *ἄβατον* down to the time of Pausanias. (Cf. *Paus.* IX, 12, 3-4, and Euripides, *Bacchae*, 1-12.)

TIRYNS. — **Excavations in 1909.** — Further digging in the southern part of the hill at Tiryns has exposed parts of both the earlier and the later castle, and pre-Mycenaean remains, to which belong some buildings with curved outline, but nothing is found corresponding to the oldest stratum at Orchomenus. On the plastered floors of the palace, together with purely decorative designs, pictures of sea-creatures swimming in blue water are found. The remains of the lower town are extensive, those on the south side of the hill being early and those on the north side late Mycenaean. The geometric remains so far found are confined to the graves and their

contents which cover the hill; but these give the first complete picture of Argolic geometric pottery. The geometric burials are in pithoi or cramped in stone coffins. (*Arch. Anz.* 1909, cols. 121-122.)

ZERELIA.—**Prehellenic Remains.**—In *B.S.A.* XIV (session 1907-1908), pp. 197-223 (19 figs.), A. J. B. WACE, J. P. DROOP, and M. S. THOMPSON report their excavations and discoveries in 1908 at Zerelia, in Thessaly (see *A.J.A.* XIII, p. 85). Fragments of Byzantine glazed pottery and of late black glazed Greek pottery were found. These last, with some badly built walls, indicate the existence of a Hellenic hamlet. The temple of Athena Itonia was probably near Kierion. Beneath the Greek layer was a rich prehistoric deposit from six to eight metres thick. A complete stratigraphical record was kept and eight successive settlements were distinguished, dated approximately from 2500 B.C. to 1100 B.C. All these are neolithic, though in the latest settlement late Mycenaean (Late Minoan III) sherds were found. The Bronze Age came late in Thessaly. The potter's wheel does not occur before the eighth settlement and was probably, like bronze, introduced from a Mycenaean source. Before this time there seems to have been no close connection between Thessaly and southern Greece. The pottery is classified as follows: Fine red ware (small vases), ware decorated with red linear figures on white ground, and a coarser ware of the same clay as the preceding, all local ware, abounding in the first four settlements, less common in the fifth, but occurring even in the seventh; coarse monochrome ware occurring in settlements 2, 3, and 4, but abounding only in settlements 5-8; black polished ware occurring in settlements 3 and 4, but abounding only in settlements 5-8; imported Dimini ware occurring in settlements 2-7; wheel-made vases and imported Mycenaean sherds in settlement 8. Rude terra-cottas occur in all strata. Cist tombs belonging to the eighth settlement were found. Hardly any remains of buildings were discovered, but one building was evidently rectangular, or, at any rate, not round. An appendix contains a discussion of some points of the topography of Phthiotis, by W. VOLLGRAFF.

ITALY

THE ITALIAN LAW RELATING TO ANTIQUITIES.—The text of the Italian law of June 20, 1909, relating to the exportation of antiquities, works of art, etc., is published in full in *Boll. Arte*, III, 1909, pp. 274-277.

MINOR DISCOVERIES.—Among minor discoveries chronicled in *Not. Scav.* 1909, may be noted the following: at **Acquapendente**, a sepulchral cippus with fragmentary Latin inscription to an Afranius (p. 292; fig.); at **Albate (Transpadana)**, a tomb of the early Iron Age (p. 264); at **Casteggio**, remains of a Roman villa (pp. 262-263); at **Cividale (Venetia)**, a Veneto-Illyrian necropolis (pp. 75-76); at **Civitavecchia**, a hemispherical basin, mended with lead, made from the lower half of a large *dolium*, a discovery helpful for the topography of the ancient city (p. 79); at **Corchiano (Etruria)**, a pit-tomb with little furnishing (pp. 78-79); at **Cremona**, a bronze pilleate helmet (cf. incomplete list of this type by PARIBENI in *Ausonia*, 1908, pp. 281 ff.), and another of plain round type (G. PATRONI, pp. 275-276; 2 figs.); at **Gambara (Brescia)**, a dagger of the

Bronze Age (p. 277; fig.); at **Milan**, remains of the Roman city-wall in Via dell' Orso (p. 274); at **Monteriggioni (Etruria)**, an important tomb of the fourth century B.C., with association of cremation and inhumation, and considerable furnishing (pp. 76-78); at **S. Pietro al Natisone (Venetia)**, 43 tombs of cremation, with furnishings (pp. 72-75); at **Pieve Porto Morone and Gerenzago (Transpadana)**, prehistoric implements (p. 267); at **Redavalle (Liguria)**, tombs of the Roman necropolis (pp. 261-262); at **Robbio (Transpadana)**, Gallo-Roman tombs (p. 265); at **Rome**, pavements of ancient streets or squares in Piazza S. Giovanni in Laterano (p. 109) and Vicolo Brunetti (p. 110); and on Via Collatina, two chamber-tombs of interesting structure (pp. 111-114; 2 figs.); at **Sulmona**, pavements of mosaic, and traces of the circuit of the Roman city (p. 99); at **Virgilio (Mantua)**, a bust of a Roman matron of the middle of the first century A.D. (p. 277; fig.).

ANCONA. — **A Villanova Urn from Picenum.** — The museum at Ancona has received various objects from Picenum, including the first Villanova urn to be found in this region. - (*Arch. Anz.* 1909, col. 127.)

APULIA. — **Discovery of Greek Tombs.** — Greek tombs in Apulia, at **Ruvo and Ceglie**, have yielded the finds described by M. JATTA in *Röm. Mitt.* XXIII, 1908, pp. 330-348 (9 figs.). These consist of vases, both black-figured and white-figured, bronze arms and utensils. The article contains also a description of an Apulian vase, with a musical scene.

BARRAFRANCA. — **A Hoard of Coins.** — The discovery in the summer of 1909 of a hoard of eighty-four coins at Barrafranca is described by PAOLO ORSI in *Boll. Num.* VII, 1909, pp. 157-159, who points out the proof therefrom of the promiscuous circulation in Sicily toward the end of the third century B.C. of coins of Roman and of Syracusan mints, and their official equivalence of values.

CASTEGGIO. — **The Ancient Clastidium.** — To *C.I.L.* V, 7357, an inscription from Casteggio containing the ancient name of the city, can now be added another from the same site with the word CLASTIDI, thus assuring still further the identification. (*G. PATRONI, Not. Scav.* 1909, pp. 263-264.)

HERCULANEUM. — **Report of the Committee on the Renewal of Excavations.** — In *Rend. Acc. Lincei*, XVIII, 1909, pp. 159-171, G. DE PETRA sums up the work of the committee appointed by the Italian government to investigate the feasibility of renewing excavations at Herculaneum. In view of the fact that no manuscripts and few Greek sculptures have been found outside the Villa of Piso the committee thinks it inadvisable to hasten the work of excavation at the expense of other sites. Nothing can be done until laws are passed defining the rights of property owners. The first work should be devoted to determining the limits of the town, the depths, stratification of the soil, etc.

LAKE OF NEMI. — **New Bronzes.** — In *R. Arch.* XIV, 1909, pp. 177-187 (2 pls.; fig.), S. REINACH publishes a bronze statue (three feet high) and seven small bronze figures which he saw in 1908 in London in the possession of the antiquaries Messrs. Spink. The large figure, cast in nine pieces, with small bits set in to correct faults in the casting, is female, and wears the dress of a priestess. The work is excellent, the style that of the early Empire. The small figures (three male and four female) represent Lares or

Genii and priestesses. All are said to have been taken from the Lake of Nemi. The priestess may perhaps be an idealized portrait of Drusilla (or Antonia?) as priestess of Caligula or of Diana Nemorensis. The history of the imperial galleys or floats on the Lake of Nemi is sketched and discussed.

LOVERE.—**A Pre-Roman Settlement.**—At Lovere, on Lake Iseo, province of Brescia, a number of graves show a pre-Roman Gallic settlement there. A costly funeral outfit of the time of Antoninus illustrates the metal industry of that period. (*Arch. Anz.* 1909, col. 123.)

NAPLES.—**A Greek Inscription.**—In *Ausonia*, III, 1908, pp. 55-56 (fig.), L. CORRERA records an unpublished Greek inscription of imperial date in Naples. It is interesting as showing the use of the Greek language in Naples at a late date. He also publishes two Latin inscriptions.

NOGAROLE.—**Discovery of Coins.**—A much-injured metal vessel found in February, 1909, at Nogarole contained over three hundred silver coins, most of them drachmas of Massilia with the head of Artemis on the obverse and a lion on the reverse. (*Madonna Verona*, III, 1909, pp. 122-123.)

NORMA.—**Early Settlement.**—Excavations undertaken in the spring of 1905 on the terraces sustained by polygonal walls near the Abbey of Valvisciolo at Norma are only now described by R. MENGARELLI and R. PARIBENI in *Not. Scav.* 1909, pp. 241-260 (30 figs.). They show that settlement began there in the neolithic or aeneolithic period. The settlers were few and poor. The majority of the population lived lower down the hill, and had a different necropolis. The terrace-walls were built for purposes of defence, and may be ascribed to a period between the seventh and sixth centuries B.C., the first settlement being perhaps a century earlier. The end of life here was when that at Norba began, with the founding of the Roman colony.

OSTIA.—**Recent Excavations.**—Excavations between the Via dei Sepolcri, the Baths, and the Theatre have discovered a tomb inscription, nearly complete, of a D. Laberius Fronto, and various sculptural and epigraphic fragments; among the latter one to the *deus sol* may be noted; some are in Greek. Certain sarcophagi were found in the vicinity, one, of unusually good workmanship, displaying three scenes from the Meleager myth. In one of the shops on a portico adjacent to the theatre was found an inscription of the year 173 A.D. of an *ordo corporatorum* with some names previously unknown in Ostian inscriptions. Other shops opening upon the same portico yielded fragments of inscriptions and sculpture. Near the entrance to the theatre was found a fine portrait bust of a young man. Excavations were continued along the Via della Fontana, yielding fragmentary inscriptions and various small objects, among them an inscription of a *corpus fontanorum* that gives for the first time the *praenomina* and *nomina* of the consuls of 232 A.D., L. Virius Lupus and L. Marius Maximus. The excavation of the Baths has been begun. A new portico has been discovered on the Via del Teatro, and this street, and not, as formerly supposed, the nearly parallel Via dei Sepolcri, has been proved to be the *cardo* of the ancient city. The precise course of the river in ancient times probably cannot be determined. Unimportant sculptural and epigraphic fragments were found in the vicinity. A dedicatory inscription to the Nymphs affords a new name to the Latin onomasticon, TITVS AMINNERICVS. (D. VAGLIERI, *Not. Scav.* 1909, pp. 82-99, 5 figs.; pp. 116-131, 6 figs.; pp. 231-240, 9 figs.; p. 293.)

OTRICOLI. — Ancient Necropolis. — Chamber-tombs of the necropolis at Otricoli are described by E. STEFANI in *Not. Scav.* 1909, pp. 278-291 (map; 8 figs.). Most of them had the vaulting broken in, and showed signs of depredation. The material yield was, therefore, poor. In a building discovered within the limits of the ancient city there were, among other fragments, pieces of Arretine vases, six of them with stamps entirely new. Reproductions accompany the description.

PALESTRINA. — New Discoveries. — Excavations in a vineyard between the Via di S. Lucia and Via della Madonna della Aquila, near the putative position of the ancient forum, disclosed remains of a complex of buildings, some of which pertained to baths. (E. GATTI, *Not. Scav.* 1909, pp. 132-135; 2 plans.)

PARRAVICINO and PLESIO (TRANSPADANA). — Tombs. — In *Not. Scav.* 1909, pp. 69-72 (3 figs.), A. GIUSSANI describes some recently discovered inhumation tombs of the *Masso-Avello* type, striking for the preservation of their original covers.

PAVIA. — Western Necropolis. — On the Corso Cavour, near the gate of that name, in Pavia, has been discovered a necropolis with tombs of Gallic and Gallo-Roman origin, dating from the third century B.C. to the time of the early Roman empire. The rite was generally incineration, and the furnishing almost exclusively of pottery.

POPULONIA. — Excavations. — About a large tumulus, explored in 1797, some fifty tombs, with objects of the fourth and third centuries B.C., have been found. The tomb of a young girl contained a gold diadem, composed of olive leaves, with a large rose in the middle and a head of Ammon at the end. In another tomb were three pieces of *aes rude* and an intaglio with a new type of Athena Promachos, also an archaic bronze statuette, once the handle of a cista, representing the suicide of Ajax (see *A.J.A.* XIII, p. 208). Near the tumulus are earlier tombs (ninth to seventh century B.C.). The violent destruction indicated by the condition of the place was, according to Milani, the work of Dionysius of Syracuse, who ravaged the region in 384 B.C. (S. R., *R. Arch.* XIV, 1909, p. 145, from *Frankfurter Zeitung*, January 3, 1909.)

RAVENNA. — The Palace of Theodoric. — The palace of Theodoric at Ravenna appears to cover older buildings. The original decoration of the upper story of his tomb is a subject of earnest discussion, and it is suggested that the bronze grating on the cathedral of Aix-la-Chapelle came from there. (*Arch. Anz.* 1909, col. 127.)

ROME. — The Excavations on the Janiculum. — In *Mél. Arch. Hist.* XXIX, 1909, pp. 3-86 (14 pls.; 42 figs.; also reprinted separately), GEORGES NICOLE and GASTON DARIER describe the excavations and discoveries on the Janiculum in 1908 and 1909 to the end of April (see *A.J.A.* XIII, 1909, p. 361). On the site of a precinct dating apparently from the second century B.C. a temple was built toward the end of the second century A.D., and over this, at the beginning of the fourth century A.D., a complex of structures comprising a western temple of the basilica form with an apse, a quadrangular court, and an eastern temple in the form of an octagon with side chambers. The marble statue of Dionysus, with gilded head and hands, is of the type represented by a statue in Berlin (*Beschreibung d. Antiken Sculpturen in Berlin*, No. 87; Reinach, *Répertoire*, II, 119, 5). A well-preserved Egypt-

tian statue of basalt probably represents Nectanebus (dynasty XXX, 378-342 B.C.). Other sculptures discovered are: a seated statue of Hades (?), lacking head, arms, and feet, with drapery over the legs and the left shoulder; a triangular candelabrum base, with a relief representing three nymphs, of neo-Attic style; several fragments; and an idol of gilded bronze. This last was found in the middle of the altar. The figure is represented as if wrapped like a mummy, and a serpent twines about it in seven coils, beginning at the feet, and raises its head above the forehead of the idol. The face of the idol appears to be that of a woman. Several eggs were buried with this strange goddess. The only complete inscription found reads: *Pro salute et reditu et victoria | imperatorum Aug. Antonini et Com(m)odi Caes. Germanic. | principis iuvent. Sarmatici | Gaionas cistiber Augustorum. d. d.* Gaionas is known through other inscriptions. The titles used fix this inscription between November 27 and December 23, 176 A.D. Ten other inscriptions on stone (all more or less fragmentary), nine brick-stamps, and sixteen inscriptions on pottery and lamps were found. The eleven coins discovered vary in date from the beginning of the Empire to Constantius II. A mould for medals represents two boxers facing each other, with a large vase between them. Among the walls were numerous tombs and many large jars of earthenware. In *C. R. Acad. Insc.* 1909, pp. 617-647 (plan; 5 pls.; 4 figs.), P. GAUCKLER shows, as a result of the excavations finished in June, 1909, that there was a third temple in the *Lucus Furrinae* on the same site as the temple of Gaionas and dating from the first century A.D. The fourth-century temple was lighted chiefly by the east door; but the two side chambers at the western end had narrow apertures which admitted the rays of the rising sun, so that they struck the divine statues in the niches at the rear. In front of the temple of Gaionas was a *delubrum*, where the worshippers bathed before entering the sanctuary. Various conduits for conveying water were found and examined. Fragments of green, brown, and dark blue glazed tiles which came to light seem to be a distant imitation of the enamelled bricks of Babylonia. They are not found in any other ruin of imperial Roman times, and were probably imported from Syria or Asia Minor in the second century A.D. *Ibid.* 1909, pp. 424-435 (2 figs.), Gauckler argues that the bronze figure of the goddess represents the birth of Atargatis, daughter of Heaven and Earth, who corresponds to the Roman *Fortuna Primigenia*.

Discoveries in the Gardens of Sallust.—Excavations for new buildings in the Villa Flavia, on ground formerly belonging to the Villa Spithoever, have brought to light more garden sculptures, apparently, of the villa of Sallust. A *Silenus*, of excellent workmanship and animated pose, lacks arms and legs. Sculptured pilasters show delicate high reliefs on one side (heads of *Maenad* and *Silenus*), on the other very low reliefs (dancing fauns). They are described by G. GATTI in *B. Com. Rom.* XXXVI, 1909, pp. 284-287 (fig.).

Discoveries near the Porta Portese.—The railway under construction, to connect the Central Station with that of Trastevere, continues to yield numerous inscriptions and sculptures from the right bank of the Tiber. Among the former should be mentioned an Augustan *titulus* of the best type, in honor of *Potitus Messalla, quindecimvir* at the time of the *Ludi Saeculares*. Among the latter the most conspicuous is a sarcophagus cover, with a grace-

ful reclining figure of a Roman matron, behind whom stands her infant, holding out a dish of fruit. (G. GATTI, *B. Com. Rom.* XXXVI, 1909, pp. 292-300; 2 figs.)

Minor Discoveries.—Minor discoveries of inscriptions at Rome include a fragment of a *laterculus militaris* fitting into *C.I.L.* VI, 32523b, and probably found near the Castra Praetoria (*Not. Scav.* 1909, pp. 81-82); a votive inscription to Serapis Conservator (two following lines erased, as in *C.I.L.* III, 11157), published in *C.I.L.* VI, 30797, but faultily (*ibid.* p. 80); and various sepulchral inscriptions (*ibid.* pp. 114-115, 227-228), in one of which (*ibid.* p. 230), otherwise carelessly cut, the wife is said to have lived with the husband *sine ullo delecto*, which F. Barnabei explains as meaning "on terms of perfect equality" (but perhaps read *delicto*?).

Excavations in the Circus Maximus.—Excavations conducted under French auspices have enabled M. P. BIGOT to determine the limits of the Circus Maximus. Neither side was straight, though the curvature of the Palatine side was slight, while on the Aventine side the irregularities were very marked. M. Bigot believes that the lateral streets were ultimately spanned with arches, in order that higher tribunes of irregular appearance might be carried on up the slopes of the Palatine and Aventine,—all very different from the conventional Circus Maximus of the imaginative restorer. (*B. Com. Rom.* XXXVI, 1908, pp. 241-253; 6 pls.; 2 figs.)

The Pre-Augustan City Wall.—A stretch of the city circuit-wall showing two periods of structure is described and illustrated by A. PASQUI in *Not. Scav.* 1909, pp. 221-223 (2 figs.). It lies on the approach to the Villa Spithoever from the Via Piemonte, and was indicated by Lanciani in his *Forma Urbis Romae*. The stretch now laid bare is 36 m. long and 9 courses high.

Acquisitions of the Museo delle Terme.—In *Boll. Arte*, III, 1909, pp. 288-306 (2 pls.; 13 figs.), R. PARIBENI publishes the acquisitions of the Museo delle Terme for the year ending in June, 1909. The more important are: the head of an old man, of marble, under life size, with the edge of the toga pulled over the top of the head; a female head of marble with a peculiar head-dress; a head of Silvanus; a youthful female head, 33 cm. high; the head of a goddess (Artemis?); a small head of Bacchus; two small female heads of marble; the fine, unidentified bust of a man found near the Trastevere station in 1908; the sarcophagus with a marriage scene found on the Via Latina more than thirty years ago and discussed by Helbig and others; the torso of a Dionysus; a relief with three male heads from the Villa Patrizi; and an elliptical bronze plate, perhaps a matrix for glass paste gems, with the head of Caesar cut on it.

A Battle with the Hydra.—In *Jh. Oest. Arch.* I. XII, 1909, pp. 183-185 (3 figs.), W. AMELUNG publishes a small bronze statuette recently in a private collection in Rome. It is less than 2 inches high, and represents a hook-nosed man with a club struggling against a hydra which is part of his own body. The face is that of a Roman of imperial times.

Military Standards in Relief.—Three military standards, one with the eagle, two with hands, sculptured in relief on a cippus used now in the altar of the crucifix in the church of S. Marcello al Corso, are pictured and described by A. PASQUI in *Not. Scav.* 1909, pp. 223-227 (2 figs.).

SARDINIA.—**Dolmens.**—Messrs. Duncan Mackenzie and Thomas

Ashby have discovered several dolmens in Sardinia. One, near the village of Arustis, forms the transition between dolmens and the "tombs of the giants." Another is covered by a monolith 13×17 ft. in size. The discoverers have no doubt that the dolmens are earlier than the nuraghi and the "tombs of the giants." (S. R. R. *Arch.* XIV, 1909, p. 145, from *The Nation*, April 1, 1909, pp. 342-343.)

Necropolis at Alghero.—A necropolis of artificial caves has been excavated at Alghero, and is described at length by A. TARAMELLI in *Not. Scav.* 1909, pp. 100-108 (9 figs.).

Baths at Cagliari.—In the district of Cagliari known as Bonaria (possibly from Balnearia) has been uncovered a very interesting thermal establishment, with fine mosaic pavements (described at length by A. TARAMELLI, *Not. Scav.* 1909, pp. 135-147; 5 figs.). The opening of 193 Punic tombs, relatively poor in furnishings because for the most part earlier rifled, is chronicled by A. TARAMELLI, *ibid.*, 1909, pp. 293-296.

SICILY.—Prehistoric Settlements.—A large prehistoric village on a low hill near the shore at **Girgenti** contains remains of the first and second Siculan and the Mycenaean periods, and presents some unusual features. The houses, which are somewhat scattered, are round, with base walls of stone, undoubtedly once surmounted by plastered wattle. A large circular paved area to which several radiating streets lead, contains six buildings, round, square, and octagonal. Outside of it lies a hut in which were objects like those in the shrine of the Kamares period at Phaestus, indicating its religious character. Another Siculan village near **Catania** contains caves cut in the rock and round huts built on the ground, both used as dwellings at the same time through the two periods. The continuity of the first and second Siculan periods may now be considered established. A Hellenized Sikel town at **Granmichelle**, near Catania, shows that in the classical period, Sicilian life drew more from the mainland of Greece than from Asia Minor. The relations with the Aegean Islands in the earliest period are a subject for further study. (*Arch. Anz.* 1909, cols. 134-136.)

The Site of Eryx.—In 1907-1908, J. KROMAYER of Vienna spent nine months in studying the battle fields of the Punic wars in Africa, Italy, and Sicily. At Monte San Giuliano, near Trapani, west end of Sicily, the site of the ancient city of Eryx was determined and the conditions of Hamilcar Barca's two years' resistance of the Romans more clearly explained. A thorough excavation here, especially at the sanctuary of Aphrodite, which was once a religious centre of great importance in the western Mediterranean, is much to be desired. (*Arch. Anz.* 1909, cols. 50-51.)

SYRACUSE.—A Hoard of Archaic Bronzes.—The museum at Syracuse has recently acquired a great hoard of bronzes weighing about a ton found near Aderno. It dates from the eighth century B.C., and contains some fine specimens of spears and axes, as well as pieces of vases, fibulae, etc. The hoard may be compared with the great hoard of bronzes found at Bologna. (*Boll. Arte*, III, 1909, p. 318.)

VERONA.—Miscellaneous Antiquities.—A number of miscellaneous Roman antiquities, including two Latin inscriptions, have recently been found at Verona. (*Madonna Verona*, III, 1909, p. 123.)

VETULONIA.—Minor Discoveries.—A pit filled with stones, in the necropolis at Vetulonia, contained numerous small objects of bronze, amber,

glass, etc., among them the butt-end and three-pronged head from a wooden staff, the purpose of which, whether a weapon, a fishing spear, or a royal or priestly attribute, is not evident. (*Arch. Anz.* 1909, col. 127.)

VITERBO. — **The Society "Pro Ferento."** — A society has been formed at Viterbo with the name "Pro Ferento" for the purpose of excavating the ancient city of Ferento, destroyed in the eleventh century of our era. Brief excavations have revealed the site of the baths and an unexplored tomb, and have brought to light three statues which have been removed to the museum at Florence. (*R. SCIAVA, Atene e Roma*, XII, 1909, cols. 57-58.)

FRANCE

ALISE. — **A Temple of the Fountain Alesia.** — Following out the suggestion of C. Jullian that Alesia was the name of a fountain, É. Espé-

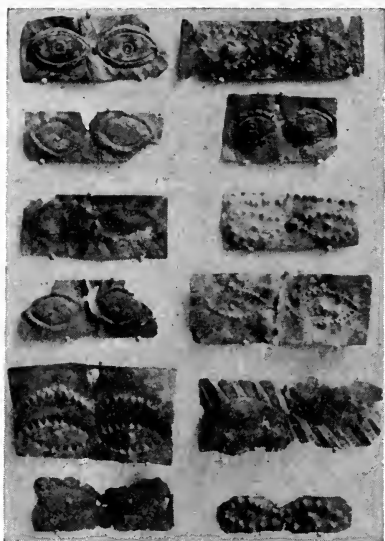


FIGURE 4. — BRONZES FROM ALISE.

randieu sought and found the temple of this goddess on the east side of Mont Auxois. It is octagonal in shape, each side being 7.50 m. long. Numerous votive offerings of bronze (Fig. 4), among them a small head of a child and various parts of the human body, came to light. Near this temple foundations of a rectangular building, 12 m. by 6 m., probably another temple, were uncovered. The inscriptions consist of a few letters only. About 50 m. northeast of the octagonal building a small square structure, 2.78 m. long on each side, was discovered. In the centre of it is a basin cut out of a single block and supplied with water from the sacred spring. The head of a female statue still retaining considerable color was found in it. The hair is red, the crown of grain yellow and green. The building dates from the first

part of the second century A.D. (É. ESPÉRANDIEU, *C. R. Acad. Insc.* 1909, pp. 498-506, 3 figs.; pp. 522-527, 2 figs.)

MONT AFRIQUE. — **A Latin Inscription.** — In *B. Soc. Ant. Fr.* 1909, pp. 179-180, A. HÉRON DE VILLEFOSSE publishes a Latin inscription recently found at Mont Afrique, 12 km. west of Dijon, and not yet perfectly understood. It reads . . . VAVITMAVRVSIO.

PARIS. — **A Marble Torso of a Satyr.** — In *R. Ét. Gr.* XXII, 1909, pp. 140-144 (2 figs.), E. MICHON publishes a marble torso, 14 cm. high, in the collection of Georges Picard at Paris. Its resemblance to the torso of the Belvedere is striking; and the presence of a tail makes it clear that it represents a satyr. This suggests that Hadaczek is right in his interpretation of the Belvedere torso.

A Semitic Seal.—In *C. R. Acad. Insc.* 1909, pp. 333-337 (fig.), C. CLERMONT-GANNEAU publishes a Semitic seal of hematite inscribed "To Abyehai, daughter of Yenahem," recently purchased for the Cabinet des Médailles; and an alabaster ointment bottle of Ptolemaic date inscribed *Κυνάμωμον | παρὰ Κρινίππου* acquired by the Louvre.

BELGIUM

EXCAVATIONS IN BELGIUM.—In *Arch. Anz.* 1909, cols. 253-255, L. RENARD shows that three tumuli near **Condroz** were examined in 1908 and found to contain no burials. He concludes that such mounds in this part of Liège served as lookouts only. Near **Tongres** among some ordinary Belgo-Roman graves was one containing a finely cut bust and two small columns of jet, besides other trinkets. Several of these burials were by inhumation. A cemetery at **Treignes** yielded coins from Nero to Maximinus. At **Silenrieux** a cavern was found to contain four strata of remains dating from prehistoric to Roman times. At **Trevières** (Hainaut) an iron casque of a rare type was found in a Frankish tomb. In *Bulletin des musées royaux à Bruxelles*, II, 1909, pp. 25-28, A. DE LOË reports briefly upon excavations carried on at **Jodoigne, Aywaille, Avennes, Lustin, Waulsort, Robelmont, and Houdrigny.**

BRUSSELS.—**Acquisitions of the Museum.**—The museum at Brussels has recently acquired an Egyptian "black-topped" vase upon which are drawn a number of antelopes bounding forward. At the left three small triangles represent mountains. The bodies of the animals are covered with lines crossing at right angles. (J. CAPART, *Bulletin des musées royaux à Bruxelles*, II, 1909, p. 8; fig.) *Ibid.* pp. 9-10 (3 figs.), Capart publishes two models of capitals, and one of the side of a door and part of a wall recently received from Egypt. *Ibid.* pp. 50-55 (3 figs.), J. DE MOR calls attention to two Greek vases newly acquired, a black-figured *psycter* and a Panathenaic amphora. The latter is inscribed *ΤΟΝΑΘΕΝΕΘΕΝΑΘΛΟΝ* and *ΠΟΛΥΙΗΛΟΞΑΡΧΩΝ*. Polyzelus was archon in the year 367-366, and his name is found on another Panathenaic amphora now in the British Museum. The use of O for Ω and E for Η at this date is noteworthy.

SWITZERLAND

DISCOVERIES IN SWITZERLAND IN 1908.—In *Arch. Anz.* 1909, cols. 255-279, A. SCHULTHEZ gives a review of the archaeological discoveries in Switzerland in 1908. At **Vindonissa** (Windisch) an ancient rubbish heap is proved to go back to about 60 A.D. Writing tablets of fir and beech were found, one with the wax and writing still preserved. At **Königsfelden** the *via principalis* and the *porta principalis sinistra* of the Roman camp have been made out, as well as several other details. There was an earlier camp of wood beneath the stone buildings, but both date from imperial times. At **Augusta Rauracorum** (Basel-Augst and Kaiser-Augst) a round building has been excavated. An inscription gives *Magidunum* as the Celtic name of the place. Gallic remains of terra sigillata were found near **Bern**. Worthy of notice is a plaque with the bust of a woman in high relief. Roman walls have been discovered in the church of

St. Donatyre near Avenches, in the nave of the church at Ursine near Lausanne, in the town walls of Olten, and in several houses at Windisch. A systematic investigation of the Roman fortifications along the Rhine from Constance to Basel has been begun.

GERMANY

THE WORK OF THE GERMAN ARCHAEOLOGICAL INSTITUTE.—An outline by G. KARO, of the previous year's work and business affairs of the Imperial German Archaeological Institute, with its Athenian, Roman, and Romano-Germanic branches, is given in *Arch. Anz.* 1909, cols. 77-84.

BERLIN.—**Acquisitions of Coins.**—The Berlin museum has recently acquired a number of fine ancient coins from the collection of Artur Löbbecke in Brunswick. The most remarkable are a sixth-century four-drachma piece from Dicaea in Thrace; a fine four-drachma piece from Catana with the signature EYAIN; a two-drachma piece of Elis, of the fifth century, bearing the head of Zeus, in perfect preservation; a rare, gold eight-drachma piece with the head of Berenice II; a gold six-drachma piece from Carthage. (K. REGLING, *Ber. Kunsts.* XXXI, 1909, cols. 32-38; 7 figs.)

A Double Solidus of Constantine.—In *Ber. Kunsts.* XXX, 1909, cols. 275-278 (fig.), K. REGLING publishes a gold double solidus of Constantine the Great recently acquired by the Berlin museum. On the reverse is represented the city of Treves with its seven towers, below which are the letters PTRE, i.e. *prima (officina) Treverensis*.

An Egyptian Axe.—In *Ber. Kunsts.* XXX, 1909, cols. 278-280 (3 figs.), Dr. MÖLLER publishes an Egyptian copper axe recently acquired by the Berlin museum, with a collection of bronze implements of the Middle Kingdom from the northern part of Upper Egypt.

COLOGNE.—**A Latin Inscription.**—In *Röm.-Germ. Kb.* II, 1909, p. 65, A. VOX DOMASZEWSKI publishes an altar inscription found at the southwest corner of the Cathedral at Cologne. The altar was dedicated to Diana by a centurion, and must have belonged to the *vivarium*. It mentions the curious fact that fifty bears were caught within six months. Date: second century A.D.

DIENSDORF.—**A Mound Grave.**—In *Z. Ethn.* XLI, 1909, pp. 690-697, H. BUSSE makes a full report (with figures) upon seventeen prehistoric vases from a mound grave near Diensdorf on the Scharmützelsee. They are of the Lausitz type, ornamented with pointed bosses surrounded by scratched or furrowed circles and lines. The grave is remarkable for the unity of its contents. Other such graves are listed, and their contents dated in the Third Period of the Bronze Age (Montelius), 1400-1200 B.C.

HALTERN I. W.—**Roman Camps.**—In *Röm.-Germ. Kb.* II, 1909, pp. 85 ff., F. KOEPP reports on further excavations on the site of two Roman camps. The foundations of barracks were traced in the later camp, and remains of a large building connected with the praetorium by a colonnade. This building may have been the dwelling of the *legatus*. The excavation yielded a considerable number of pieces of sigilla ware.

JAGSTHAUSEN.—**A Roman Cemetery.**—P. GOESSLER (*Röm.-Germ. Kb.* II, 1909, p. 55) briefly reports on excavations conducted on the

site of a Roman cemetery dating from the second century A.D. The finds of pottery were unusually plentiful. A fuller report is promised, to appear in the *Fundberichte aus Schwaben*.

MAINZ.—**Roman and Early Christian Inscriptions.**—In *Röm.-Germ. Kb.* II, 1909, pp. 66–69, KÖRBER publishes eight fragmentary inscriptions recently brought to light. An early Christian tombstone reads: [*In hu]nc s(e)pul(c)hro [re]q(u)üiscit Gennarius q(u)i vixxit an(n)us XXV*. One of the Roman inscriptions mentions C. Aufidius Vittorinus, who was sent by Marcus Aurelius against the Chatti.

MUNICH.—**Acquisitions of the Antiquarium.**—In the *Mün. Jb. Bild. K.* 1909, pp. 74–77 (7 figs.), J. SIEVEKING reports the following acquisitions of the Antiquarium at Munich in the second half of 1908: (1) a marble idol, 7.5 cm. high, of the primitive Cyclades type; (2) a bronze statuette of a running Silenus, 9.5 cm. high, dating from about 500 B.C.; (3) a large bronze hydria from southern Italy of the same date; (4) a bronze mirror from the Peloponnesus of the middle of the fifth century; (5) an Etruscan mirror of good workmanship, with figures of Meleager, Atalanta, Althaea and Porthaon; (6) a terra-cotta plaque from Melos, 17.5 cm. high and 16 cm. wide, representing Odysseus as a beggar appearing before Penelope; (7) four pieces of a cylindrical vessel of terra-cotta from the Piræus, dating from the first century B.C., two pieces decorated with cupids and two with Greeks fighting Gauls; (8) a small Mycenaean pyxis of steatite, with cover, from Crete. The acquisitions of ancient coins and gems are recorded by G. HABICH, *ibid.* pp. 98–101 (2 pls.). In *R. Arch.* XIV, 1909, p. 148 (after Wolters, *Münchener Neueste Nachrichten*, Beilage No. 150), S. R. reports the acquisition of an Attic stele, on which is a *loutrophoros* in low relief and remains of color in encaustic. The names of the persons represented are Παράμιθιον and Φειδιάδης. A second Attic stele of the second half of the fourth century B.C. bears in relief a seated girl and a servant standing before her. The inscription gives the name Mnesarete, daughter of Socrates.

NIEDERBERG B. EHRENBREITSTEIN.—**Roman Pottery.**—In *Röm.-Germ. Kb.* II, 1909, pp. 69–71, A. GIENNER reports the discovery of a Roman pottery at Niederberg. The numerous sherds are mostly Flavian and early-Antonine.

NORTH GERMANY.—**Recent Finds of Diluvial Flint Implements.**—In *Z. Ethn.* XLI, 1909, pp. 503–505, H. MENZEL treats of the geological position and distribution of a vast number of prehistoric flint instruments, among them many scrapers and borers of peculiar form. He attributes them to the first and second interglacial periods, regarding them as transitional from the archæolithic to the palæolithic stage of culture, as defined by Verworn.

TREVES.—**Underground Chambers of the Amphitheatre.**—In *Röm.-Germ. Kb.* II, 1909, pp. 82–85, E. KRÜGER publishes a preliminary report of the excavations in the arena of the amphitheatre, conducted in 1908 and 1909. The excavations have disclosed the existence of an underground structure similar to the one found at Metz. It has the shape of a cross, irregularly hewn out of the rock, and consists of three parts: (1) a central portion, which seems to have been reserved for the stage machinery, and (2) two wings of unequal dimensions. Remains of the wooden pillars supporting the roof were found, and in the bottom a number of holes at

regular intervals. A mass of miscellaneous objects was brought to light, including sculptured slabs, inscriptions, iron arms, etc.; also three ivory pyxides. Indications point to an occupation of the structure in post-Roman days; perhaps for religious purposes.

VETERA.—**The Roman Camp on the Fürstenberg.**—Further excavations have disclosed the true dimensions of the Roman camp on the Fürstenberg which was occupied jointly by the fifth and fifteenth legions; the camp measured 920 × 630 m. The four gates were located, and with them the *via principalis* and *via praetoria*. At two places a peculiar stamp was found **R, Tra**, which still awaits interpretation. Evidence was found of the existence of an earlier camp. (H. LEHNER, *Röm.-Germ. Kb.* II, 1909, pp. 49–51.)

AUSTRIA-HUNGARY

DISCOVERIES IN AUSTRIA IN 1908.—At **Carnuntum** the exploration of the *praetentura* has been taken up again after nearly ten years' interval. The officers' quarters and what are apparently barracks have been cleared. Much alteration and addition of buildings is traceable here, especially in the time of Valentinian. Gallic and German pottery is found. Some of the epitaphs on late graves are remarkable for refinement and depth of feeling. At **Lauriacum** the entire *porta principalis dextra* with a stretch of the adjoining fortifications has been cleared. The *via principalis* is found to be 9 m. wide, the *via praetoria* 6.70 m. This camp has many peculiar features, some of which may be due to rebuilding at various periods. The street that connected the camp with the ancient boundary road has been found leading from the Vienna-Linz road to the decuman gate. The history of the place itself and its relations to the affairs of the Empire and of border nations have been elucidated by a close study of coins found here. Among the small finds are another fragment of the city statutes on bronze, and a bronze hand with the index finger unnaturally long, an appearance which occurs elsewhere but is still unexplained. Near the fortress of **Albing**, on the Danube, traces of the accompanying civil settlement have been found. Work has been done at **Mauer-Oehling**, but the name of the Roman camp there is not known. The monumental building on the **Helenenburg**, ancient Virunum, is found to be early Roman. The base and lower portion of a marble group of an emperor with captive barbarian, over life size, was found at **Pola**. (F. LOEHR, *Arch. Anz.* 1909, cols. 279–290.)

DISCOVERIES IN HUNGARY IN 1908–1909.—Recent archaeological discoveries and publications in Hungary are summarized by G. V. FINÁLY in *Arch. Anz.* 1909, cols. 290–300 (4 figs.). He gives a plan of the *castellum* at **Leányvár**, near Izsa, with its gates, towers, baths, barracks, etc. Coins found there date from M. Antonius triumvir to Valentinian and Valens. Systematic excavation of Dacia has been begun. Houses with heating apparatus and sometimes mosaics, statues, or inscriptions, were excavated at **Intercisa** (Dunapentele), **Porolissum**, and **Apulum**; baths at **Kayászszentpéter**; a water conduit at **Torda** (Pataissa); and graves at **Intercisa** (Roman with first century gravestones used in fourth-century constructions; and 12 Avar graves), **Nagybarát** (Hallstatt, beneath Roman), and **Apulum** (Roman, with inscriptions), etc. Among the single

finds were: bronze objects at **Nagydén**, including statuettes of Apollo and of a Lar; a silver plate with eagle in relief, probably a legionary *insigne*; a *tabula honestae missionis*, of the period 128–158; three reliefs of horsemen; and three models of military towers roughly made of the same clay as the military tiles and supposed to be grave monuments. The coins published belong to the republic and the emperors from Nero to Maximian.

RUSSIA

DISCOVERIES IN SOUTHERN RUSSIA.—The chief discoveries in southern Russia during the year 1908, were, as heretofore, small objects, often of great value, from graves. From **Bori**, in Transcaucasia, the Hermitage Museum acquired various ornaments, vessels, weapons, parts of silver-covered furniture, and coins dating from Augustus down to the fifth century A.D. At **Maikop**, Kuban district, the objects purchased include gold ornaments and a silver vessel of Cyprian-Phoenician style. At **Tanais**, the most northerly Greek settlement, in the new city, built after the destruction of the old one about 100 B.C., on a different site, a necropolis of the second century was explored which contained graves of every sort. The furnishings, comprising ornaments of gold, silver, and semi-precious stones, silver and bronze vessels, weapons, coins, pottery, etc., indicate a wealthy and prosperous city. Here were found gravestones which roughly follow the outline of the human figure. At **Panticapaeum**, a necropolis was explored which contained graves dating from the fifth century B.C. to late Roman times. A painted burial chamber of the fourth century had the walls painted in horizontal bands with small objects represented as hanging on pegs. The pottery includes Hellenistic Greek ware, with a fragment of a medallion cylix, and finely finished red-glazed ware with applied decoration. At **Chersonnese**, over three hundred graves were opened. They were of every kind and showed both rites of burial. One marble stele has a relief of a reclining woman. There is Attic pottery of about 400 B.C., but most of the vases date from the second century A.D. On the island of **Berezani**, the old Ionian houses were found to contain graves with partly burnt remains, under their floors. Archaic terra-cottas and early pottery of several kinds were found. At the bottom of a well were the skeletons of a horse and man, with an iron finger ring, drowned there in the sixth century B.C. At **Olbia**, the Greek fortifications could be traced only by the foundation of layers of ashes and earth, and the stone bases of the towers at the north gate. These are not later than the fourth century B.C. Within the city, six building strata were found, the oldest being of about 700 B.C. and the latest of the time of the Roman emperors. Storage amphoras were found in the oldest city. Stone graves with pitch roofs occur very near the surface of the ground. Some burial chambers had their entrances closed with amphoras. A terra-cotta altar has reliefs like those on a relief vase from Olbia. Sculptures of Pentelic marble occur, inscribed pottery and gravestones, and several inscribed lead tablets. "Scythian" graves were opened at **Chigrin**, government of Kiev, and in **Poltava**, in the Dnieper country, with remains from the fourth, third, and second centuries B.C. (B. PHARMAKOWSKY, *Arch. Anz.* 1909, cols. 140–176; 40 figs.)

SOUTH POLAND.—**Cave Dwellings in Ojcow, South Poland.**—In *Z. Ethn.* XLI, 1909, pp. 745–751 (3 figs.; map), HEINRICH VON DIEST

describes a visit to some caves in Poland, inhabited by prehistoric men, and lists some implements found in or near them.

GREAT BRITAIN

ARCHAEOLOGICAL RESEARCHES IN WALES.—In the *First Annual Report* of the Liverpool Committee for Excavation and Research in Wales and the Marches (Liverpool, 1909, University Press. 86 pp.; 16 pls.; fig.) an account is given of the work carried on in 1908. R. NEWSTEAD (pp. 20-39; 10 pls.) describes a newly found section of the Roman wall at **Chester**, discovered during the excavation for a new telephone station. It is 56 feet 10 inches long and in excellent condition. Arrangements have been made for preserving the greater part of it. He also describes a Roman concrete foundation and a palaeolithic implement from Chester. This article is likewise printed in *Annals of Archaeology and Anthropology*, II, 1909, pp. 52-71. H. S. KINGSFORD (pp. 40-48; pl.; fig.) reports briefly upon eighteen ancient forts in **North Wales** and **Anglesey**. G. CLINCH (pp. 49-52; pl.) reports upon three cromlechs, two forts, and two ancient roads in the **Cader Idris** district. H. G. EVELYN-WHITE (pp. 53-82; 3 pls.) discusses the Roman camp at **Caerleon**, and the excavations of 1908. A considerable portion of a large building and parts of a second were brought to light. The minor finds are also published. In the *Manchester Guardian*, July 7, 1909 (plan; fig.), R. C. BOSANQUET reports upon excavations in Wales in 1909. At **Caersws**, the *praetorium* of the Roman fort was partially uncovered, including the regimental "strong-room"; also a granary and part of another building. The fort was about 660 × 600 feet in extent. At **Caerleon-on-Usk**, an experimental trench revealed an amphitheatre about 274 feet long and 226 feet broad. The outer wall is still standing in places six or seven feet high. Two entrances have been found. The arena was about 200 by 150 feet.

LONDON.—A New Inscription of Sennacherib in the British Museum.—The British Museum has recently acquired an eight-sided terra-cotta cylinder, containing about 720 lines of cuneiform writing relating to the history of Sennacherib. It is almost complete and is a remarkably fine example of Ninevite cuneiform. It dates from the year 694 B.C. Among other things it contains accounts of the Assyrian campaigns from 698-695; of the building of the great palace; of the augmenting of the water supply; and of the construction of the inner and outer walls of Nineveh. The names and relative positions of the seven gates are given, which will prove of value for the topography of the city. (*London Times*, December 10, 1909.)

Some Recent Acquisitions of the British Museum.—Some recent acquisitions of the British Museum are illustrated and briefly described by F. H. MARSHALL in *J.H.S.* XXIX, 1909, pp. 151-167 (21 figs.). They are: (1) A copy of a Polyclitan head of a youth, dating from the close of the fifth century, similar to the Westmacott head, but earlier and finer. (2) Marble capital of a pilaster with a group of Leda and the swan on the front; probably copied from a sculptured group at Nicomedia, which is shown on Nicomedian coins of the time of Alexander Severus, early third century A.D. (3) Round marble disk from Athens, with inscription of about

550 B.C. ΓΝΑΘΟΝΟΣ : ΤΟΔΕΞΕΜΑ : ΘΕΤΟΔΑΥΤΟΝ : ΑΔΕΛΦΕ : ΗΛΙΘΙΟΝ : ΝΟΞΕΛΕΥΞΑ : ΞΑ, 'This is the tomb of Gnathon. His sister laid him to rest, having nursed him in vain.' The sigmas are retrograde. The form ἡλίθιον for ἡλίουιον is to be noted. This is slightly earlier than the Piræus disk of Aeneas the physician (*Jb. Arch. I.* XII, pl. 1), but of the same size. Such disks were a temporary fashion of the sixth century, and may have served to cover a funeral urn or a hole for putting offerings into the tomb. (4) Stone chest with short legs, movable cover and imitation of a lock plate, from the temple of Cybele at Sardis; inscribed: ΕΤΠΙΕΡΕΩΞΤΑΝΦΙΛΟΥΜΗΤΡΟΔΟ | ΡΟΞΑΡΤΕΜΙΔΩΡΟΥΠΕΡΙ-ΡΑΝΘΗΣ. The office of *perirantes*, sprinkler, probably of lustral water, is new, though *periranterion*, for the vessel used, is known at Delphi. (5) Small bronze statuette of Apollo grasping a pair of goat's horns, as a hunter god. Boeotian inscription of about 550 B.C.: ΓΑΝΥΑΡΙΔΑΣΤΟΠΟΛΟΝΙ. The name Ganyaridas is new. (6) Six silver-plated bronze plaques and one silver gilt, from horse trappings, found in a tomb in Elis. They are embossed with subjects connected with horses, and their position on the harness is shown by that of similar plaques found with the skeletons of horses in tombs in South Russia. They represent the *phalaron*, *prometopidion*, and *paragnathion*, and one, which is lunate, may have been apotropaic. (7) Bronze mirror silvered on both sides, with thin beaten bronze relief of Greeks and Amazons soldered on the cover, latter part of fourth century B.C. (8) Bronze arm of couch to be attached to a wooden frame. Head of Athena, reclining Dionysus, head of Hera, end of third century B.C. After this century couches of a different style were used. (9) Small bronze figure of a young negro, on antique base, with raised left arm which probably held a lamp, first century B.C. or early first century A.D. Negro slaves were introduced into Rome from Alexandria. (10) Terra-cotta food warmer, in the form of a two-storied shrine or round temple, with an actor standing in the upper doorway. A lamp in the chamber behind him would heat the flat bowl which covers the top, Graeco-Roman period. (11) Pair of hollow gold reels, perhaps for winding silk, with Rhodian devices, probably fourth century B.C. (12) Two silver seals from rings, with busts of Hadrian and the names of Callipus, archon, and Cleon, *paraphylax*. The latter title is unusual but occurs on a lead weight, and may denote a warden of weight standards. (13) Amethyst intaglio with bust of an emperor in profile, fourth century A.D.

SILCHESTER.—The Excavations of 1907.—In *Archaeologia*, LXI, 1908, pp. 199-215 (3 pls.; 9 figs.), W. H. ST. JOHN HOPE reports upon the excavations at Silchester in 1907, the eighteenth campaign on the site. Work was carried on in parts of Insulae XXVIII and XXXV. The most important discovery was a small temple in Insula XXXV of the same type as the two already known in Insula XXX. A broken inscription preserves the word *Calleva*, which must be the ancient name of the town. The excavation of the site is now regarded as completed. *Ibid.* pp. 215-218, F. HAVERFIELD discusses the three fragmentary inscriptions found.

SOMERSET COUNTY.—A Torques of Gold.—A laborer in Somerset County (England) has found a very fine *torques* of gold, which has been bought by the Somerset Archaeological Society. (*S. R., R. Arch.* XIV, 1909, p. 283.)

AFRICA

ARCHAEOLOGICAL WORK IN 1908.—In *Arch. Anz.* 1909, cols. 189-227 (8 figs.), A. SCHULTEN publishes a review of the archaeological work done in northern Africa in 1908.

BULLA REGIA.—**The Excavation of the Public Baths.**—In *C. R. Acad. Insc.* 1909, pp. 581-589, Dr. CARTON reports upon his excavations at Bulla Regia in 1909. The site of the public baths was definitely determined and the *hypocaustum* and other parts located. One piece of wall still stands to a height of 7 m. In the west wall of the hall above the *hypocaustum* was a great doorway, 4 m. high, near which was found an inscription in five lines mentioning a new *procurator tractus Karthaginis* named Rossius.

DJEBEL FERZA.—**An Ancient Berber Necropolis.**—In *C. R. Acad. Insc.* 1909, pp. 289-294, Dr. CARTON gives a brief account of an ancient Berber necropolis found by him at Djebel Ferza, Tunis, but not yet excavated.

HADRUMETUM.—**Discoveries in the Catacombs.**—In *C. R. Acad. Insc.* 1909, pp. 282-289 (plan; fig.), Canon LEYNAUD publishes twelve Latin inscriptions discovered in the catacombs of Hadrumetum in 1908. Several Christian lamps, one of peculiar shape, and two fine mosaics were also found.

IFRI N DELLAL.—**Libyan Inscriptions.**—In *C. R. Acad. Insc.* 1909, pp. 590-593, R. BASSET reports upon the Libyan inscriptions at Ifri n Dellal, Algeria. There are about 335 letters cut on the rock, some of which resemble Touareg characters. They probably date from the second or third century A.D.

KEF.—**A Latin Metrical Inscription.**—In *C. R. Acad. Insc.* 1909, pp. 467-469, A. HÉRON DE VILLEFOSSE publishes a Latin metrical inscription found near Kef, Tunis. The greater part of the first twenty-one lines, containing an invocation to Spring and to the god Silvanus, is preserved. The inscription dates from a good period, but its purpose and its original length can only be conjectured.

UNITED STATES

BOSTON.—**The Museum of Fine Arts.**—A general account of the new building of the Museum of Fine Arts, Boston, and of the arrangement of the collections is given in *B. Mus. F. A.* VII, 1909, pp. 43-66 (12 figs.).

NEW YORK.—**An Acquisition of the Metropolitan Museum.**—The Metropolitan Museum has acquired the statue of an old market woman (Fig. 5), found at Rome in 1907. (*A.J.A.* XII, 1908, p. 106.) The figure is less than life size, and represents an old peasant woman carrying fowls and a basket. The arms are broken off and the face was so badly mutilated that it had to be restored in plaster. There are traces of a bright pink border on the himation, and green on the strap of the sandal of the left foot. The marble has taken on a beautiful old ivory color. The statue is an original Greek work and the most important of its class preserved.

PHILADELPHIA.—**Acquisitions of the University Museum.**—The Free Museum of Science and Art of the University of Pennsylvania has been presented with the life-size torso of the Venus and the marble mask of a river-god, found at Teano in 1908 and published in *Not. Scav.* 1908, pp. 405 and 409.

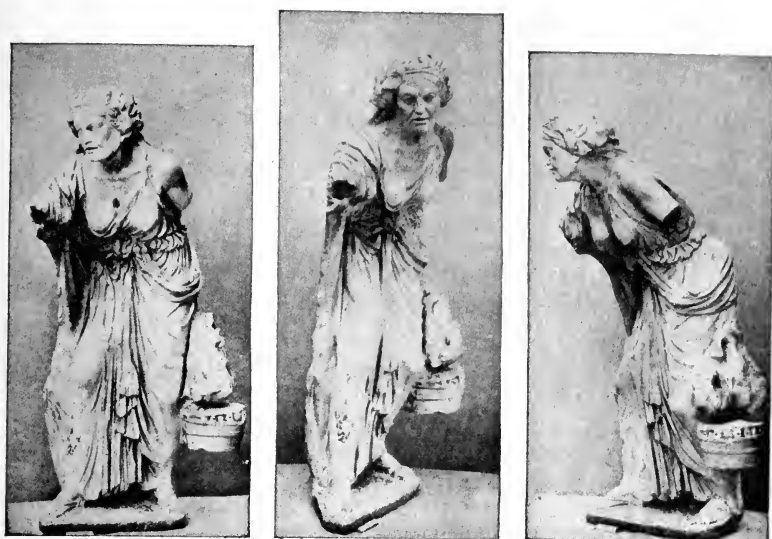


FIGURE 5. — STATUE OF AN OLD MARKET WOMAN.

EARLY CHRISTIAN, BYZANTINE, MEDIAEVAL, AND RENAISSANCE ART

GENERAL AND MISCELLANEOUS

DISCOVERY OF THE NAME OF THE HAUSBUCHMEISTER.

— H. T. BOSSERT communicates to *Rep. f. K.* XXXII, 1909, pp. 333–334, the interesting fact that he has solved the mystery of the name of the *Hausbuchmeister*, by simply reading backwards the letters on the trappings of the horse on p. 21a of the *Hausbuch* (Fig. 6), viz.: HENRICH · LANG · F(ecit).

CONSTANTINOPLE. — Byzantine Architecture. — In *R. Arch.* XIV, 1909, pp. 1–41, J. EBERSOLT publishes a preliminary account of his mission to Constantinople. This includes a description of the base of Marcian's columns hitherto unpublished, and an illustrated account of a number of churches.

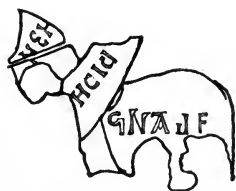


FIGURE 6. — SIGNATURE OF THE HAUSBUCHMEISTER.

ITALY

ACQUISITIONS OF ITALIAN GALLERIES. — The Museo Civico of Pisa has recently acquired two pictures by Ghirlandaio formerly in the Gesuati Convent in that city. They are described in *Boll. Arte*, III, 1909, pp. 326–339, by A. B. PIETRI, and represent each the Madonna with Saints. The Royal Galleries of Venice have acquired a sculptured wooden altar-piece

by Bartolomeo Giolfino da Verona, signed and dated 1470 (described by G. FAGOLARI, *Boll. Arte*, 1909, pp. 387-398). In the Florence Academy a new room has been arranged, conducting to the *Sala del David*, in which have been placed the unfinished Prisoners of the Villa Boboli, the "Genius subduing Matter," and the St. Matthew of Michelangelo. (C. D., *Chron. Arts*, 1909, p. 264.)

COMO.—**Paintings.**—In *R. Arch.* XIV, 1909, p. 149, S. R(EINACH) mentions the following paintings at Como: (1) Giottesque frescoes in the church of San Abondio, of which an album of good photographs exists at the price of one lira; (2) in the church of San Fedele, under glass, a Virgin and Child between two saints, a fresco which recalls Foppa; (3) in the church of St. Peter, of the eighteenth century, an old copy, in the size of the original, of Titian's "Martyrdom of St. Peter of Verona" which was burnt in 1867.

FLORENCE.—**An Acquisition of the Uffizi.**—The Uffizi gallery has recently acquired a Holy Family by Alessandro Allori. (*Boll. Arte*, III, 1909, p. 238.)

Drawings in the Uffizi.—A series of important drawings by masters of the fifteenth and of the early sixteenth centuries is published in *Boll. Arte*, III, 1909, pp. 373-385, by P. NERINO FERRI. The most interesting are: a Weaver by Paolo Uccello; a Crucifixion by Alessio Baldovinetti; Three Nude Girls by Antonio del Pollaiuolo; a Head of Angel by Verrocchio; a Coronation of the Virgin by Botticelli; a nude male figure lying on his back by Marco Basaiti, and a study for the Crucifixion in the Scuola di S. Rocco, at Venice, by Tintoretto.

A Drawing by Di Credi.—A drawing in the *Biblioteca Marcelliana* at Florence is obviously the sketch for Lorenzo di Credi's well-known tondo of the Madonna in the Uffizi. The finished painting has changed some details and for the worse. (*Boll. Arte*, III, 1909, p. 316.)

Frescoes by Pierino del Vaga.—Vasari's description of Pierino's frescoes in the Palazzo Baldassini enables G. POGGI to identify two frescoes, transferred to canvas, which were recently unearthed in the Uffizi store-rooms. They represent Zaleucus commanding the Blinding of his Son, and Tarquinius Superbus founding the Temple of Jupiter. (*Boll. Arte*, III, 1909, pp. 270-273.)

FONTIGNANO.—**A New Perugino.**—IRÈNE VAVASOUR-ELDER publishes in *Rass. d' Arte*, IX, 1909, p. 121, a fresco in the church of Fontignano, near Perugia, representing the Madonna and Child, which she assigns to Perugino. The fresco is dated by an inscription, 1522, at which time Perugino was living at Fontignano, where he died in 1524.

GUBBIO.—**A Newly Discovered Work by Pietro Lorenzetti.**—An interesting discovery is reported from Gubbio, where the pictures forming the public gallery are in course of being transferred from the Palazzo dei Priori to another palace. Count Umberto Gnoli, sent by the Government to superintend the operations, noticed a triptych containing an oil painting of the seventeenth century, and suspecting that it concealed an earlier work, had it cleaned by Professor Colavieti. Thirteen figures were brought to light which Gnoli unhesitatingly ascribes to Pietro Lorenzetti. The work is said to throw much light upon the history of the school of Gubbio, and to explain the influence exercised over it by the great master of Siena. (*Athen.* October 23, 1909, p. 503.)

LA MARSICA. — Mediaeval Monuments. — P. PICCIVILLI describes the monuments of La Marsica in central Italy in an article in *L'Arte*, XII, 1909, pp. 329-348. The most interesting of them are: the little-known wooden doors in S. Maria in Cellio at Carsoli, carved with the Life of Christ and bearing a date in the twelfth century; the thirteenth century Cosmatesque pulpit in S. Pietro at Rocca di Botte; and the pulpit in the church at Coreumello, the work of a certain Stefano da Moschino (Mosciano?) and dated 1267.

LUCCIANO. — An Adoring Madonna. — In the church of S. Stefano at Lucciano near Pistoia is a kneeling terra-cotta Madonna (Fig. 7), belonging to a Nativity the other figures of which are gone, which betrays reminiscences of the style of Mino da Fiesole. (A. STANGHELLINI, *Rass. d'Arte*, IX, 1909, p. 158.)

MILAN. — Acquisitions of the Brera. — The Brera has recently acquired: an Assumption by Girolamo Marchesi, dated 1513 and bought from an English collection (*London Times*, July 30, 1909); a Madonna and St. John Baptist, and a Madonna with the child John Baptist by Bernardino Licinio; an Allegory of Discipline by Schiavone; a Madonna by Cima da Conegliano; a fragment of a Nativity by Cariani; the Martyrdom of St. Paul (St. Peter?) by a Lombard artist of the sixteenth century; a Holy Family by Civerchio (?); a Nativity by a follower of Gaudenzio Ferrari; a Portrait of a Knight of Malta by Bernardo Strozzi; a Madonna with Saints and Angels of the Verona school; a Madonna with Saints of the school of the Romagna; and a seventeenth-century drawing of a piazza in Florence. (F. MALAGUZZI VALERI, *Rass. d'Arte*, IX, 1909, pp. 137-144.)

Statues of the Sforzas in Milan Cathedral. — In *Rass. d'Arte*, IX, 1909, pp. 109-112, U. NEBBIA identifies the statue of a young knight which stands in the front rank of the statues decorating one of the windows of the north sacristy with Galeazzo Maria Sforza, and the "armed giant" which surmounts the last pier buttress toward the transept, on the south side of the *langhaus*, with his father Francesco.

MONTEFALCO. — The Frescoes in S. Chiara. — In *Rass. d'Arte*, IX, 1909, pp. 164-167, L. FIOCCA publishes the frescoes of S. Chiara at Montefalco, concluding that they are the work of an Umbrian artist imitating



FIGURE 7. — KNEELING VIRGIN: TERRA-COTTA.

Cavallini, and that they show an affinity to the paintings in the church of S. Domenico in Turin.

PADUA.—**A New Portrait of Donatello.**—The museum at Padua has a new portrait of Donatello painted on wood. The only portrait of this painter previously known is in the Louvre. (*Le Musée*, VI, 1909, p. 159.)

ROME.—**Discoveries under the Pavement of St. Peter's.**—The renewal of the marble pavement of the chapel of St. Petronilla has brought to light a number of fragments belonging to the old basilica which had been utilized as building material. Among these is one sculptured fragment of a good classic period, and another of Byzantine or Romanesque sculpture which must have been part of an *antependium* belonging to an altar. (*Chron. Arts*, 1909, p. 239.)

The Future Aspect of the Baths of Diocletian.—C. RICCI publishes in *Boll. Arte*, III, 1909, pp. 361–372, a series of views of the Baths of Diocletian from the sixteenth to the eighteenth century, showing the respect to the ruins which was manifested by Michelangelo when he built within them the church of S. Maria degli Angeli. Ricci announces that the reconstruction of the Terme will restore as nearly as possible the aspect which Michelangelo left to the ruins, by removing the masking façade of Vanvitelli on the southwest, reopening the original entrance to the church on the southeast, destroying later additions, and leaving the ruins in their magnificent nudity.

An Important Inscription.—M. COLAGROSSI publishes in *N. Bull. Arch. Crist.* 1909, pp. 51–65, the following epitaph found in the cemetery of St. Sebastian or *ad catacumbas* on the Appian Way:

Hic requiescit . . . tituli SCOR IOHANNIS ET PAVLI TE QVERVNT
ma GNALIA XPO TV LXXV AN IN ECCLESIA
 DEP. IIII KAL . APRILIS POST CONS
 PAULINI IVN

The date is the rare one of 535, and the first line shows that the deceased belonged to the clergy of the *Titulus Byzantii*, or the church of Sts. John and Paul on the Caelian Hill. This indicates that this church was entrusted with the care of the cemetery *ad catacumbas*, as the *titulus Fasciolae* governed the cemetery of Domitilla.

A New Fiorenzo.—A. VENTURI publishes in *L'Arte*, XII, 1909, pp. 317–318, a St. Sebastian in the Spada gallery in Rome, which he attributes to the primitive period of Fiorenzo di Lorenzo.

A Unique Epiphany.—In *N. Bull. Arch. Crist.* 1909, pp. 67–70, C. W. LAMBERTON reproduces a fragment of a sarcophagus cover in the Villa Pamfili at Rome, on which an Epiphany is represented. It is singular in that the Virgin is represented as reclining on a bed.

SIENA.—**Naddo Ceccarelli.**—To the two pictures assigned to Naddo Ceccarelli, the follower of Simone Martini, F. MASON PERKINS, in *Rass. d' Arte Senese*, 1909, pp. 5–14, adds a polyptych representing the Madonna, Saints, and Angels in the Siena gallery, there attributed to Bartolommeo di Nutino, a Madonna belonging to H. P. Horne, and another in the gallery at Buda Pesth, there ascribed to Lippo Memmi.

TIVOLI. — **Frescoes in S. Silvestro.** — By the accidental fall of some plaster in the apse of the church of S. Silvestro at Tivoli, the original decoration was discovered. The removal of the plaster disclosed a fresco of the Madonna, flanked by figures of prophets with heads of monks below. The frescoes are ascribed to the eleventh century. (*Boll. Arte*, III, 1909, p. 359.)

VENICE. — **Important Paintings discovered.** — Repairs to the interior of the church of S. Giuliano between 1830 and 1840 caused the removal of a number of canvases which were rolled up, deposited in a ceiling of the church, and then forgotten. Recently brought to light, they prove to be a Calvary by Tintoretto, a Resurrection and an Ecce Homo by Palma Giovane, two organ-wings with the figures of Sts. Jerome and Theodore by Andrea Vicentino, a Gethsemane and a Washing of Feet by Giovanni Fiammengo, a Deposition, a Christ before Caiaphas, a Crowning with Thorns, and a Flagellation by Leonardo Corona. The pictures by Tintoretto and Palma are in bad condition. (*Rass. d' Arte*, IX, 1909, Aug.-Sep. p. ii.)

SPAIN AND PORTUGAL

CARMONA. — **A Visigothic Calendar.** — In the *Boletín de la Real Academia*, 1909, pp. 34 ff., 273 ff., Padre Fidel Fita has published and discussed a Visigothic calendar discovered by Mr. Bonsor at Carmona. It is engraved on a marble column, probably originally Roman. It gives the liturgical calendar from December 25 to June 24. The date is before 633 A.D. Text and summary notes are given by S. R., *R. Arch.* XIV, 1909, p. 283.

TOLEDO. — **Discovery of a Greco.** — In one of the structures connected with the church of S. Leocadia a painting signed by El Greco has been discovered, which represents the Immaculate Conception. (*Chron. Arts*, 1909, p. 239.)

LISBON. — **A Portuguese Primitive.** — H. Cook publishes in *Burl. Mag.* XV, 1909, pp. 232-237, four panels of a triptych from the monastery of San Vicente which belong to the Portuguese school of the middle of the fifteenth century.

FRANCE

AUTUN. — **Burgundian Art in the Musée Rolin.** — In *Gaz. B.-A.* I, 1909, pp. 406-420, there is a sketch by A. GERMAIN of the works of art dating from the twelfth century and later, which are collected in the provincial museum of Autun.

AVRANCHES. — **Romanesque Miniatures.** — No. 210 of the manuscripts in the library of Avranches is a *cartularium* of the Abbey of Mont-Saint-Michel containing four miniatures in outline drawing which belong to the original portion of the manuscript, dating from the twelfth century. They represent the Vision of St. Aubert (the founder of the monastery), the Donation of Richard II, Duke of Normandy, the Donation of the Duchess Gonnor (second wife of Richard II), and the Donation of Robert the Devil. Norman miniatures being rare, these drawings have a unique importance. (A. BOINET, *Bibliothèque de l'École de Chartes*, 1909, pp. 334-343.)

LA GRAULIÈRE (CORRÈZE). — **A New Romanesque Motif.** — One of the subjects carved on the portal of the small twelfth-century church in the village of La Graulière is a bearded man carrying a huge fish on his right shoulder. This may be Tobias, but may also represent one of the

torments of the miser who appears bearing the devil on his back in the scene next to this. A similar combination of devil and man bearing a fish occurs in a window at Mans. (R. FAGE, *B. Soc. Ant. Fr.* 1909, p. 173.)

PARIS.—**A Miniaturist of 1351.**—H. MARTIN in *Gaz. B.-A.* II, 1909, pp. 89–102, gives an account of the illustrations of a manuscript in the Bibliothèque de l'Arsenal. It is a Quest of the Holy Grail, illuminated in 1351 by Pierart dou Tielt, as the inscription at its close informs us. Names of fourteenth-century artists are rare in the North. This one evidently came from Thielt in Flanders, but the style of the miniatures and other evidence assigns the work to the Tournay school. The most remarkable feature of the illumination is the genius for caricature shown in the fantastic scenes in the borders.

An Acquisition of the Louvre.—The Louvre has recently acquired a Portrait of Pierre Qutte by François Clouet which is described in *Monatshefte f. Kunstwiss.* II, 1909, pp. 356–367, by L. M. RICHTER. He adds a discussion of French sixteenth-century portraiture, and concludes that the style is of local origin.

BELGIUM

BRUGES.—**The Signature of Louis van Boghem.**—F. DE MÉLY has found in one of the miniatures of a small Book of Hours in the seminary of Bruges the signature: *Jusque-à-la | fin- | Louuich-van | Boghem.* The miniatures are much like little reliefs and architectural ornament, as is to be expected from the artist who was the architect of the famous monument of Brou. (*B. Soc. Ant. Fr.* 1909, p. 157.)

GERMANY

AUGSBURG.—**Windows by Holbein the Elder.**—P. DIRR in *Mün. Jb. Bild. K.* 1909, pp. 33–45, describes the windows in the collection of the *Pfarrhof* of St. Ulrich at Augsburg representing an Adoration of the Magi, formerly in St. Ulrich's, and finds that they were done after Holbein's drawings of the same subject in Basel. The windows, moreover, were painted by the artist himself. Other windows from the same church are from the master's hand, e.g. the Madonna in the Sacristy, formerly in the window of the *Abtkapelle* and a St. Ursula in the *Pfarrhof* museum.

BERLIN.—**Acquisitions of the Kaiser-Friedrich Museum.**—This museum has recently added to its collections: a predella by Fra Angelico, the Funeral of St. Francis; and another by Benozzo Gozzoli, A Miracle of St. Zenobius. (SCHOTTMÜLLER in *Ber. Kunsts.* XXX, 1909, cols. 233–237.)

Pictures of the Spanish Quattrocento.—V. VON LOGA and E. BERTAUX publish in *Jb. Preuss. Kunsts.* 1909, pp. 179–192, two works, one of which, a St. Peter enthroned in the Kgl. Kunstgewerbemuseum, is clearly the work of Jacomart Baçó. The other work consists of two wings of a triptych, the central panel of which, representing St. George with a female figure, is in the possession of Don E. Cabot in Barcelona. The wings have kneeling figures of the donors, who are (according to von Loga) John, King of Castile and Leon, and his Queen, Maria, together with their patrons, John Baptist and St. Louis of Toulouse. Bertaux assigns the triptych to the atelier of Jaime Huguet.

Two Mediaeval Statues.—F. WOLFF publishes for the first time in *Monatshefte f. Kunstwiss.* II, 1909, pp. 447-453, two statues of the fourteenth century. The one is a Madonna which is apparently by the same hand as another Madonna in Magdeburg Cathedral. The other is a product of the lower Rhenish school, the figure of a bishop. Both figures are in the Märkisches Museum in Berlin.

MUNICH.—**A Drawing by Sodoma.**—O. WEIGMANN publishes in *Mün. Jb. Bild. K.* 1909, pp. 54-59, a drawing by Sodoma, which he shows to be the study for the Betrothal of St. Catherine in the Galleria Nazionale (Corsini) at Rome.

Perugino's Vision of St. Bernard.—In a study of the history of Perugino's Vision of St. Bernard, published in *Mün. Jb. Bild. K.* 1909, pp. 46-53, G. GRONAU concludes that it was probably painted between 1491 and 1493.

NÜRNBERG.—**A Relief by Hans Schwarz.**—In *Monatshefte f. Kunstwiss.* II, 1909, pp. 393-395. W. VÖGE assigns to Hans Schwarz a small stone relief in the Germanic museum at Nürnberg, known as the Madonna of the Cherub.

HUNGARY

HUNGARY.—**Works by Andrea Ferrucci.**—Of the two monuments which Vasari says that Ferrucci constructed in Hungary, one still exists, viz., the altar in the chapel of Cardinal Bakocz in the church of St. Adalbert at Strigonia. Vasari calls it a *sepoltura*, misled, no doubt, by the fact that the cardinal was buried at the foot of the altar. The figures with which Ferrucci ornamented its niches have perished; but of the original ornament there remain two half-figures of evangelists, and the relief of the Annunciation at the top flanked by kneeling angels in the round. Ferrucci has left another example of his work in Hungary, in the tabernacle of the sacrament in the cathedral at Fünfkirchen. (C. VON FABRICZY, *L'Arte*, XII, 1909, pp. 302-307.)

RUSSIA

ST. PETERSBURG.—**The Exposition of Paintings.**—The Russian art review, *Starije Godij*, inaugurated last year an exposition of pictures in St. Petersburg collections, which is described in *L'Arte*, XII, 1909, pp. 216-231, by P. P. WEINER (see *A.J.A.* XIII, 1909, p. 384). The excellence of the exposition is the more remarkable that it did not include the collections of Semenoff-Tianschausky, of the Counts Stroganoff, or that of the Leuchtenbergs. The most interesting pieces are: a Madonna by Cima da Conegliano in the Kotchoubey collection; a Coronation of the Virgin, attributed to Simone Martini (which the editors of *L'Arte*, in a note, ascribe to Bernardo Daddi), and belonging to Baron Meyendorff; and particularly a Madonna of the school of Leonardo, belonging to Madame Bénéis.

GREAT BRITAIN

CAMBRIDGE.—**A Little-known Painting by Simone Martini.**—F. MASON PERKINS publishes in *Rass. d'Arte Senese*, 1909, pp. 3-5, a triptych representing in the centre St. Michael and on the wings two bishops, probably Sts. Augustine and Ambrose, with angels in the little gables at

the top. All are half-figures. The triptych is assigned to Simone on internal grounds.

LONDON.—An Acquisition of the National Gallery.—The National Gallery has acquired the "Norfolk Holbein," a portrait of Christine of Denmark, wife of Francesco II, Sforza. (*Rass. d' Arte*, June, 1909, p. iv.)

A Work by Jacques Daret.—In a very interesting study in *Burl. Mag.* XV, 1909, pp. 202-208, G. H. DE LOO shows that a panel of a triptych, representing the Presentation in the Temple, now in the possession of Duveen Brothers, is a work of Jacques Daret, painted in 1434. The other two panels are in the Berlin museum.

The Burlington Codex.—The collection of drawings by Palladio which was made by Lord Burlington in the eighteenth century, belongs now to the Duke of Devonshire, who has lent it to the Library of the Royal Academy of British Architects in London. The first seven volumes contain the drawings of the Roman Thermae, already published by Burlington. The others contain a miscellany, the most interesting pieces of which are Palladio's sketches for his own buildings. One sketch shows that he drew his conception for his villas from Roman remains (e.g. the Rotonda of the Villa Mario Capra from the Thermae of Caracalla). The ninth volume contains a comprehensive reconstruction of the *Templum Fortunae* at Praeneste. The sketches of one series are the preliminary drawings for the illustrations of his *Libro dell' Architettura*. The great majority of the drawings are of undoubted authenticity, but here and there some are found which have nothing to do with Palladio. (F. BURGER, *Rep. f. K. XXXII*, 1909, pp. 327-330.)

OLD SARUM.—Recent Excavations.—From August 23 to November 5, 1909, the Society of Antiquaries carried on excavations in the castle area at Old Sarum, about one and three-quarters miles north of Salisbury. The entrance was cleared and, on the opposite side of the bailey, a "block" 80 feet long, containing four chambers, was uncovered. This is still 20 feet high. Above two of the chambers was a tower 40 feet square, identified as the "tower above the postern." The latter consisted of a narrow passage through the rampart, defended by inner and outer doorways, and opening originally upon a wooden bridge across the ditch leading from the outer bailey. Much time was spent clearing the inner bailey. Part of a Roman hand-mill and fragments of Roman tiles indicate that remains of the original building will be found. It is estimated that it will take eight or ten years to complete the excavation. (*London Times*, November 17, 1909.)

AFRICA

THELEPTE.—A Christian Vase.—In *C. R. Acad. Insc.* 1909, pp. 597-605 (4 figs.), Dr. CARTON publishes a Christian vase found at Thelepte, in Tunis, upon which is represented in relief the martyrdom of a Christian in the circus. It bears the inscription *Saturninus ex of(f)icin(a)*. Such vases are very rare.

TUNIS.—Christian Inscriptions.—In *B. Soc. Ant. Fr.* 1909, pp. 157-158, 189-190, 191-194, 199-201, 210-216, 217-219, and 224-226, P. MONCEAUX publishes twenty-five early Christian inscriptions from different sites in Tunis.

UNITED STATES

ITALIAN PICTURES IN AMERICAN GALLERIES.—In *Rass. d'Arte*, IX, 1909, pp. 145-148, F. MASON PERKINS writes of the following Italian works in this country: an Assumption by Luca di Tommé in the Jarves collection at New Haven; the St. John Evangelist by Liberale da Verona in the Johnson collection at Philadelphia; a S. Niccolo da Tolentino by Fiorenzo di Lorenzo in the same collection; an Annunziata by Mariotto Albertinelli, belonging to S. Untermeyer of Yonkers, N. Y.; and a Madonna by Francesco Napoletano in the Morison collection at Boston.

WORKS BY EL GRECO.—In *Z. Bild.* K. N. F. XX, 1909, pp. 20-24, M. H. BERNATH describes three paintings by El Greco in American collections: the Assumption in the Chicago Art Institute; the Adoration of the Magi in the Metropolitan Museum at New York; and the portrait of Fray Palavicino in the Boston Museum of Fine Arts.

BOSTON.—**Acquisitions of the Museum of Fine Arts.**—In *Rass. d'Arte*, IX, 1909, pp. 169-171, J. BRECK describes some of the recent acquisitions of the Boston Museum of Fine Arts in the field of Italian art, which were on exhibition in the Fogg Museum. The most important are: a Madonna by Taddeo di Bartolo; a St. Jerome by Matteo di Giovanni; a Madonna and Angels by Spinello Aretino; an Adoration of the Magi by Cosmé Tura; a Madonna by Bruozzo Gozzoli; and a Sacrifice of Cain and Abel by Fra Bartolomeo.

DETROIT.—**Acquisitions of the Museum of Art.**—Mrs. Harriet J. Scripps has presented to the Detroit Museum of Art fifteen "old masters," of which the most important are: a Crucifixion attributed to Perugino; a St. Francis of Assisi by Murillo; a Repose of a Hawking Party by Philip Wouwermans; a Madonna attributed to Correggio; a Battle Scene by Jacques Courtois; and an Annunciation assigned to Gerard Dou. (*Bull. Detroit Mus. of Art*, 1909, pp. 46-50.)

NEW YORK.—**Acquisitions of the Metropolitan Museum.**—Recent accessions to the Metropolitan Museum are: a Virgin and Child by Lorenzo Monaco (*B. Metr. Mus.* 1909, pp. 141-143); a Portrait of Erasmus by Hans Holbein (loaned by J. P. Morgan, *ibid.* p. 139); tapestries of the fifteenth and sixteenth centuries from the Hoentschel collection (loaned by J. P. Morgan, *ibid.* pp. 149-152); a Madonna by Bartolomeo Montagna (c. 1490, *ibid.* pp. 156-157); a tondo by Lorenzo di Credi, Virgin adoring the Child (*ibid.* pp. 186-188); a Head of Putto, fragment of an altar relief by Antonio Rossellino; a bronze Reclining Putto by Verrocchio; two terracotta reliefs of the fifteenth century, one by the Master of the Pellegrini Chapel; a fourteenth-century marble Madonna (*ibid.* pp. 206-208); and a number of examples of Romanesque sculpture (*ibid.* pp. 208-209).

WORCESTER.—**The "Master of the Dying Cato."**—This is the title given to an unknown Italian master of the seventeenth century by H. Voss, who now adds to the few works he has been able to assemble around the "Dying Cato" a Christ among the Doctors, in the museum at Worcester. (*Monatshefte f. Kunstwiss.* II, 1909, pp. 400-401.)

AMERICAN ARCHAEOLOGY

GENERAL AND MISCELLANEOUS

THE MEETING OF THE BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.—At the meeting of the British Association for the Advancement of Science held at Winnipeg, August 25 to September 1, 1909, the following papers were read in the field of American archaeology: Miss A. C. BRETON on 'Race-types in the Ancient Sculptures and Paintings of Mexico and Central America,' distinguishing the tall, slender race of warriors and priests from that of the captives; and on 'Arms and Accoutrements of the Ancient Warriors at Chichen Itza'; G. B. GORDON, a review of the work being done by the principal institutions of learning in the country; E. G. PERRY on some copper implements, one tipped with silver, from a river bed at Fort Francis, Ontario; H. MONTGOMERY, 'The Archaeology of Ontario and Manitoba.' In Ontario are found the usual Eastern remains, "ceremonials," ossuaries, tumuli and pictographs; in Manitoba, tumuli, earthen ridges and house-sites, as well as stone and clay specimens. (G. G. MACCURDY, *American Anthropologist*, N. S. II, 1909, pp. 456-477.)

CONGRESS FOR PREHISTORIC ARCHAEOLOGY.—The sessions of the fifth *Congrès Préhistorique de France* were held at Beauvais from July 26 to July 31, 1909. Much attention was given to the megalithic monuments of France and of other countries; in this connection A. L. LEWIS read a paper on some 'Megalithic Monuments of Ireland.' C. PEABODY represented Harvard University and presented some 'Archaeological Notes on the Extreme Western Portion of Texas.'

ANDOVER.—**Acquisition of a New Collection.**—The Department of Archaeology of Phillips Academy at Andover, Massachusetts, has received as a gift from Professor Williams of Andover, the Steinbruck collection of archaeological material from the Mandan sites of North Dakota. There are in all about nine thousand specimens, and the collection is especially rich in unusual types of bone implements and in the smaller stone objects; among these are rare forms of scrapers, double and single.

CALIFORNIA.—**Ancient Burial Site in Kern County.**—The Museum of the Department of Anthropology of the University of California has come into possession of a collection from an ancient burial site from the southwestern edge of the great San Joaquin Valley, in Kern County, Central California. The human remains indicate partial cremation followed by burial. Their state of preservation displays a hitherto undescribed mode of wrapping the limbs. A piece of Pueblo cloth is perhaps the first positive evidence of direct relations between the Southwest and Central California. Other objects show clearly the former existence in this region of customs and religious practices known in historic times only in Southern California.

CENTRAL AMERICA.—**Explorations.**—Under the auspices of the Peabody Museum of Harvard University A. M. Tozzer and R. E. Merwin left Cambridge in November, 1909, to conduct explorations in Central America during the present season.

LONDON.—**A Collection of Peruvian Antiquities.**—H. T. Myring has recently exhibited in London a remarkable collection of Peruvian

antiquities excavated by him in the Chimcana valley. There are in all about one thousand objects illustrating the civilization of the Chimu people. Vessels with tubular handles are numerous. The heads of the figures and the animals are carefully modelled, but accessories are often merely painted. Many religious objects exhibit the characteristic head-dress of a god and some unmistakably that of the sun-god. (*Athen.* Oct. 16, 1909, p. 467; *Illustrated London News*, Dec. 4, 1909.)

NEBRASKA.—**Discovery of Petroglyphs.**—E. E. Blackman has recently examined a large quartzite boulder at Syracuse, Otoe County, Nebraska, upon which are a number of "turkey tracks." These tracks are six inches long and are made by bruising the quartzite with a heavy instrument; in a few instances they show a very slight depression, but most of them can be distinguished only by the bruised condition of the rock. They may be made out by an observer standing fifty feet away. A careful impression is to be made and the study of the characters is now going on. There are many ordinary Indian pictographs in the state, but these petroglyphs are entirely distinct and appear to be of great age. The Nebraska State Historical Society has lately had made a cast of the granite boulder covered with petroglyphs found near Harrington, Nebraska, in 1869.

NEW MEXICO.—**Excavations at Tyuonyi.**—In *American Anthropologist*, N.S. II, 1909, pp. 434-455 (7 pls.; 17 figs.), E. L. HEWETT discusses the work of the School of American Archaeology during the summer of 1908 in the Rito de los Frijoles. The ancient remains in the Rito consist of four community houses in the valley, one on the mesa rim near the southern brink of the cañon and a series of cliff-houses extending for a distance of a mile and a quarter along the base of the northern wall. Of the community houses the great one of Tyuonyi was the focus of population in the Rito; it was a terraced structure, roughly circular, probably a three-storied pueblo; a peculiarity is that the walls themselves are curved, whereas usually the curvature is formed by changing the direction from room to room. Several interesting *kivas*, or subterranean tribal sanctuaries, were discovered; a restoration of one of these, the largest *kiva* yet discovered, presents a circular room forty-two feet in diameter and a passageway or entrance leading from a shaft of like height (or depth) with the chamber. The problems connected with burial are not all solved; several burials were discovered by the excavation of trenches in the talus about two-thirds of the way down to the flood plain. The skeletons were found buried separately in the talus and were not accompanied with pottery or utensils.

UTAH.—**A New Museum Building in Salt Lake City.**—It is announced that the material of the Deseret Museum will be installed shortly in a new building now nearing completion.

ABBREVIATIONS

Abh.: Abhandlungen. *Allg. Ztg.*: Münchener Allgemeine Zeitung. *Alt. Or.*: Der alte Orient. *Am. Anthr.*: American Anthropologist. *Am. Archit.*: American Architect. *A.J.A.*: American Journal of Archaeology. *A.J. Num.*: American Journal of Numismatics. *A.J. Sem. Lang.*: American Journal of Semitic Languages and Literature. *Ami d. Mon.*: Ami des Monuments. *Ant. Denk.*: Antike Denkmäler. *Ann. Arch. Anth.*: Annals of Archaeology and Anthropology. *Arch. Ael.*: Archaeologia Aeliana. *Arch. Anz.*: Archäologischer Anzeiger. *Arch. Rec.*: Architectural Record. *Arch. Rel.*: Archiv für Religionswissenschaft. *Arch. Miss.*: Archives de Missions Scientifiques et Littéraires. *Arch. Stor. Art.*: Archivio Storico dell' Arte. *Arch. Stor. Lomb.*: Archivio Storico Lombardo. *Arch. Stor. Patr.*: Archivio della r. società romana di storia patria. *Athen.*: Athenaeum (of London). *Ath. Mitt.*: Mitteilungen d. k. d. Archaeol. Instituts, Athen. Abt.

Beitr. Assy.: Beiträge zur Assyriologie. *Ber. Kunsts.*: Amtliche Berichte aus den Königlichen Kunstsammlungen. *Berl. Akad.*: Preussische Akademie der Wissenschaften zu Berlin. *Berl. Phil. W.*: Berliner Philologische Wochenschrift. *Bibl. Stud.*: Biblische Studien. *Bibl. World*: The Biblical World. *B. Ac. Hist.*: Boletín de la real Academia de la Historia. *Boll. Arte*: Bollettino d' Arte. *Boll. Num.*: Bollettino Italiano di Numismatica. *Bonn. Jb.*: Bonner Jahrbücher: Jahrbücher des Vereins von Altertumsfreunden im Rheinlande. *B.S.A.*: Annual of the British School at Athens. *B.S.R.*: Papers of the British School at Rome. *B. Arch. M.*: Bulletin Archéol. du Ministère. *B. Arch. C. T.*: Bulletin Archéologique du Comité des Travaux hist. et scient. *B.C.H.*: Bulletin de Correspondance Hellénique. *B. Inst. Ég.*: Bulletin de l'Institut Égyptien (Cairo). *B. Metr. Mus.*: Bulletin of the Metropolitan Museum of Art, New York. *B. Mus. Bruz.*: Bulletin des Musée Royaux des arts decoratifs et industriels à Bruxelles. *B. Mus. F. A.*: Museum of Fine Arts Bulletin, Boston. *B. Num.*: Bulletin de Numismatique. *B. Soc. Ant. Fr.*: Bulletin de la Société des Antiquaires de France. *B. Soc. Anth.*: Bulletin de la Société d'Anthropologie de Paris. *B. Mon.*: Bulletin Monumental. *B. Com. Rom.*: Bollettino d. Commissione Archeologica Comunale di Roma. *B. Arch. Crist.*: Bollettino di Archeologia Cristiana. *B. Pal. It.*: Bollettino di Paletnologia Italiana. *Burl. Gaz.*: Burlington Gazette. *Burl. Mag.*: Burlington Magazine. *Byz. Z.*: Byzantinische Zeitschrift.

Chron. Arts: Chronique des Arts. *Cl. Phil.*: Classical Philology. *Cl. R.*: Classical Review. *C. R. Acad. Insc.*: Comptes Rendus de l'Académie des Inscriptions et Belles-Lettres. *C.I.A.*: Corpus Inscriptionum Atticarum. *C.I.G.*: Corpus Inscriptionum Graecarum. *C.I.L.*: Corpus Inscriptionum Latinarum. *C.I.S.*: Corpus Inscriptionum Semiticarum.

Ἐφ. Ἀρχ.: Ἐφημερίς Ἀρχαιολογική. *Eph. Ep.*: Ephemeris Epigraphica. *Eph. Sem. Ep.*: Ephemeris für Semitische Epigraphik. *Exp. Times*: The Expository Times.

Fornvännen: Fornvännen: meddelanden från K. Vitterhets Historie och Antikvitets Akademien.

Gaz. B.-A.: Gazette des Beaux-Arts. *G.D.I.*: Sammlung der griechischen Dialekt-Inschriften.

I.G.: Inscriptiones Graecae (for contents and numbering of volumes, cf. *A.J.A.* IX, 1905, pp. 96-97). *I.G.A.*: Inscriptiones Graecae Antiquissimae, ed. Roehl. *I.G. Arg.*: Inscriptiones Graecae Argolidis. *I.G. Ins.*: Inscriptiones Graecarum Insularum. *I. G. Sept.*: Inscriptiones Graeciae Septentrionalis. *I. G. Sic. It.*: Inscriptiones Graecae Siciliae et Italiae.

Jb. Arch. I.: Jahrbuch d. k. d. Archäol. Instituts. *Jb. Kl. Alt.*: Neue Jahrbücher für das klassische Altertum, Geschichte und deutsche Litteratur und für Pädagogik. *Jb. Kunsth. Samm.*: Jahrbuch der Kunsthistorischen Sammlungen des allerhöchsten Kaiserhauses. *Jb. Phil. Päd.*: Neue Jahrbücher für Philologie und Pädagogik (Fleckeisen's Jahrbücher). *Jb. Preuss. Kunsts.*: Jahrbuch d. k. Preuss. Kunstsammlungen. *Jh. Oest. Arch. I.*: Jahreshefte des oesterreichischen Archäologischen Instituts. *J. Asiat.*: Journal Asiatique. *J.A.O.S.*: Journal of American Oriental Society. *J. B. Archaeol.*: Journal of the British Archaeological Association. *J. B. Archit.*: Journal of the Royal Institute of British Architects. *J. Bibl. Lit.*: Journal of Biblical Literature. *J.H.S.*:

Journal of Hellenic Studies. *J. Int. Arch. Num.*: *Διέθνῃς Ἐφημερίς τῆς νομισματικῆς ἀρχαιολογίας*, Journal international d'archéologie numismatique (Athens).

Kb. Gesamtver.: Korrespondenzblatt des Gesamtvereins der deutschen Geschichts- und Altertumsvereine. *Klio*: Klio: Beiträge zur alten Geschichte. *Kunstchr.*: Kunstchronik.

Mb. Num. Ges. Wien: Monatsblatt der Numismatischen Gesellschaft in Wien. *Mh. f. Kunstw.*: Monatshefte für Kunstwissenschaft. *Mél. Arch. Hist.*: Mélanges d'Archéologie et d'Histoire (of French School in Rome). *Mél. Fac. Or.*: Mélanges de la Faculté Orientale, Beirut. *M. Acc. Modena*: Memorie della Regia Accademia di scienze, lettere ed arti in Modena. *M. Inst. Gen.*: Mémoires de l'Institut Genevois. *M. Soc. Ant. Fr.*: Mémoires de la Société des Antiquaires de France. *Mitt. Anth. Ges.*: Mitteilungen der anthropologischen Gesellschaft in Wien. *Mitt. C.-Comm.*: Mitteilungen der königlich-kaiserlichen Central-Commission für Erforschung und Erhaltung der Kunst- und historischen Denkmale. *Mitt. Or. Ges.*: Mitteilungen der deutschen Orient-Gesellschaft. *Mitt. Pal. V.*: Mitteilungen und Nachrichten des deutschen Palestina Vereins. *Mitt. Nassau*: Mitteilungen des Vereins für nassauische Altertumskunde und Geschichtsforschung. *Mitt. Vorderas. Ges.*: Mitteilungen der vorderasiatischen Gesellschaft. *Mon. Ant.*: Monumenti Antichi (of Accad. d. Lincei). *Mon. Piot*: Monuments et Mémoires pub. par l'Acad. des Inscriptions, etc. (Fondation Piot). *Mün. Akad.*: Königlich Bayerische Akademie der Wissenschaften, München. *Mün. Jb. Bild. K.*: Münchner Jahrbuch der bildenden Kunst.

N. D. Alt.: Nachrichten über deutsche Altertumsfunde. *Nomisma*: Nomisma: Untersuchungen auf dem Gebiete der antiken Münzkunde. *Not. Scar.*: Notizie degli Scavi di Antichità. *Num. Chron.*: Numismatic Chronicle. *Num. Z.*: Numismatische Zeitschrift. *N. Arch. Ven.*: Nuovo Archivio Veneto. *N. Bull. Arch. Crist.*: Nuova Bulletino di Archeologia cristiana.

Or. Lit.: Orientalistische Literaturzeitung. *Or. Lux*: Ex Oriente Lux.

Pal. Ex. Fund.: Quarterly Statement of the Palestine Exploration Fund. *Πρακτικά*: Πρακτικά τῆς ἐν Ἀθήναις ἀρχαιολογικῆς ἐταιρείας. *Proc. Soc. Ant.*: Proceedings of the Society of Antiquaries.

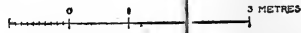
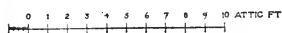
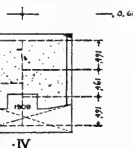
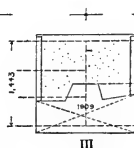
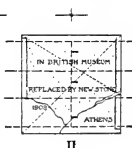
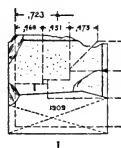
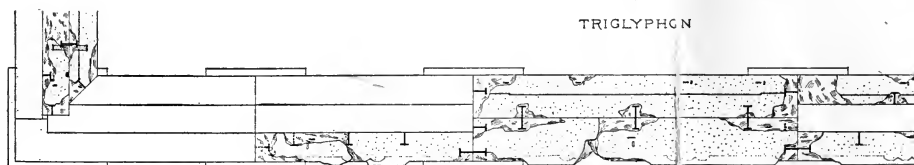
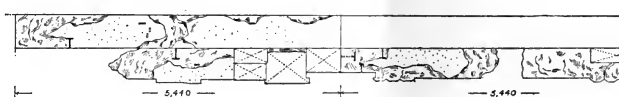
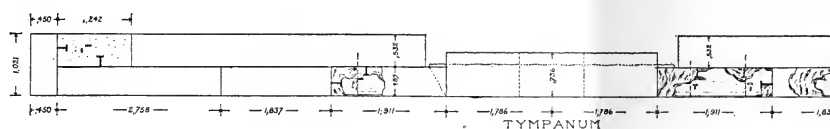
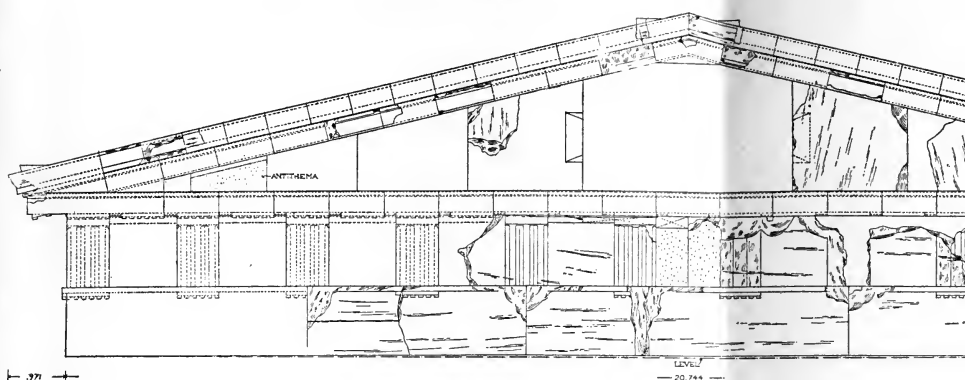
Rass. d'Arte: Rassegna d'Arte. *Rec. Past*: Records of the Past. *R. Tr. Ég. Assyr.*: Recueil de travaux relatifs à la philologie et à l'archéologie égyptiennes et assyriennes. *Reliq.*: Reliquary and Illustrated Archaeologist. *Rend. Acc. Lincei*: Rendiconti d. r. Accademia dei Lincei. *Rep. f. K.*: Repertorium für Kunstwissenschaft. *R. Assoc. Barc.*: Revista de la Asociacion artistico-arqueologica Barcelonesa. *R. Arch. Bibl. Mus.*: Revista di Archivos, Bibliotecas, y Museos. *R. Arch.*: Revue Archéologique. *R. Art Anc. Mod.*: Revue de l'Art ancien et moderne. *R. Art Chrét.*: Revue de l'Art Chrétien. *R. Belge Num.*: Revue Belge de Numismatique. *R. Bibl.*: Revue Biblique Internationale. *R. Ép.*: Revue Épigraphique. *R. Ét. Anc.*: Revue des Études Anciennes. *R. Ét. Gr.*: Revue des Études Grecques. *R. Ét. J.*: Revue des Études Juives. *R. Hist. Rel.*: Revue de l'Histoire des Religions. *R. Num.*: Revue Numismatique. *R. Or. Lat.*: Revue de l'Orient Latin. *R. Sém.*: Revue Sémitique. *R. Suisse Num.*: Revue Suisse de Numismatique. *Rh. Mus.*: Rheinisches Museum für Philologie, Neue Folge. *R. Abruzz.*: Rivista Abruzzese di Scienze, Lettere ed Arte. *R. Ital. Num.*: Rivista Italiana Numismatica. *R. Stor. Ant.*: Rivista di Storia Antica. *R. Stor. Calabr.*: Rivista Storica Calabrese. *R. Stor. Ital.*: Rivista Storica Italiana. *Röm.-Germ. Forsch.*: Bericht über die Fortschritte der Römisch-Germanischen Forschung. *Röm.-Germ. Kb.*: Römisch-Germanisches Korrespondenzblatt. *Röm. Mitt.*: Mitteilungen d. k. d. Archäol. Instituts, Röm. Abt. *Röm. Quart.*: Römische Quartalschrift für christliche Altertumskunde und für Kirchengeschichte.

Sächs. Ges.: Sächsische Gesellschaft (Leipsic). *Sitzb.*: Sitzungsberichte. *S. Bibl. Arch.*: Society of Biblical Archaeology, Proceedings.

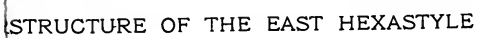
Voss. Ztg.: Vossische Zeitung.

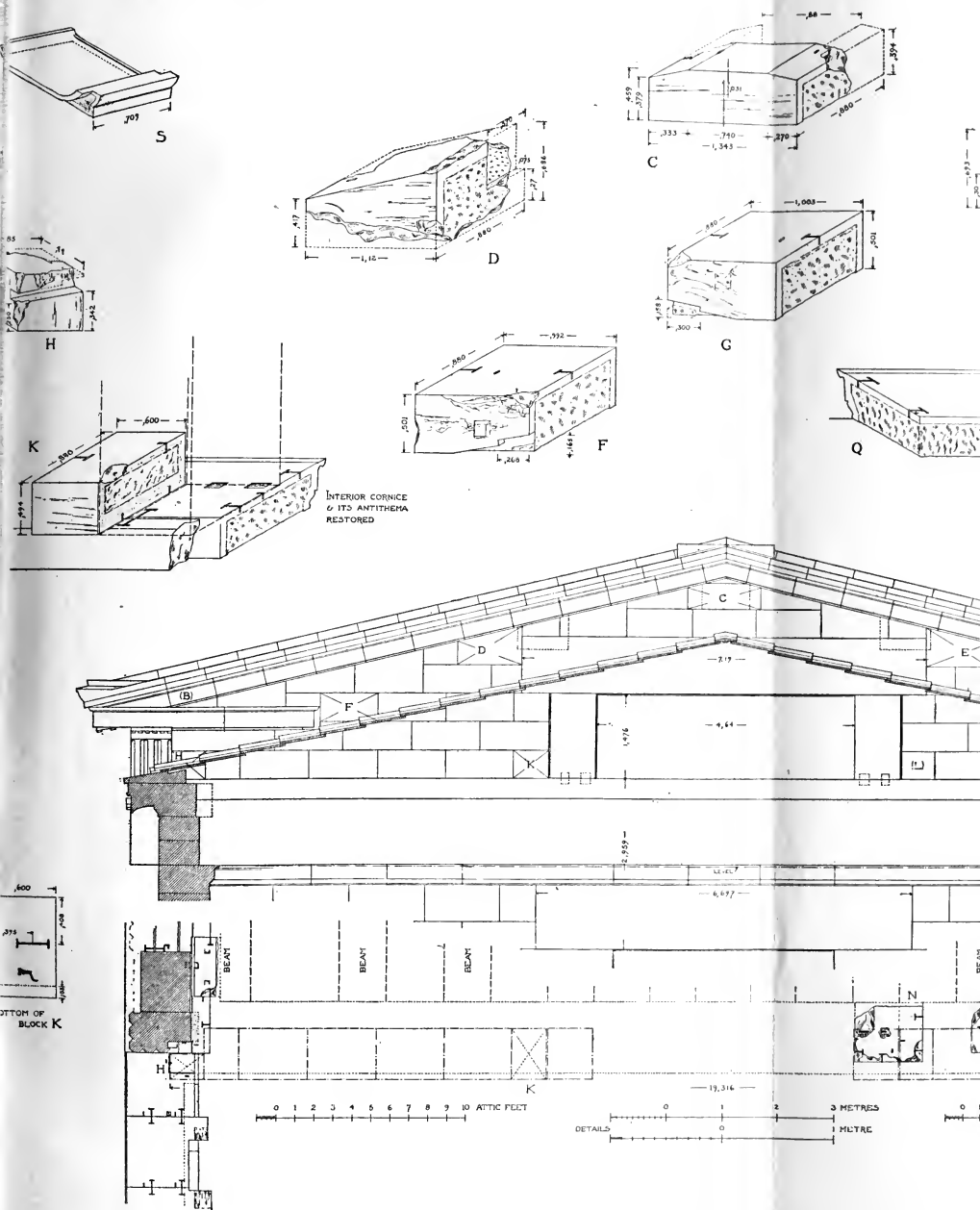
W. kl. Phil.: Wochenschrift für klassische Philologie.

Z. D. Pal. V.: Zeitschrift des Deutschen Palestina Vereins. *Z. Aeg. Sp. Alt.*: Zeitschrift für Aegyptische Sprache und Altertumskunde. *Z. Alttest. Wiss.*: Zeitschrift für alttestamentliche Wissenschaft. *Z. Assyr.*: Zeitschrift für Assyriologie. *Z. Bild. K.*: Zeitschrift für Bildende Kunst. *Z. Ethn.*: Zeitschrift für Ethnologie. *Z. Morgenl.*: Wiener Zeitschrift für die Kunde des Morgenlands. *Z. Morgenl. Ges.*: Zeitschrift der deutschen Morgenländischen Gesellschaft. *Z. Mün. Alt.*: Zeitschrift des Münchener Altertumsvereins. *Z. Num.*: Zeitschrift für Numismatik.



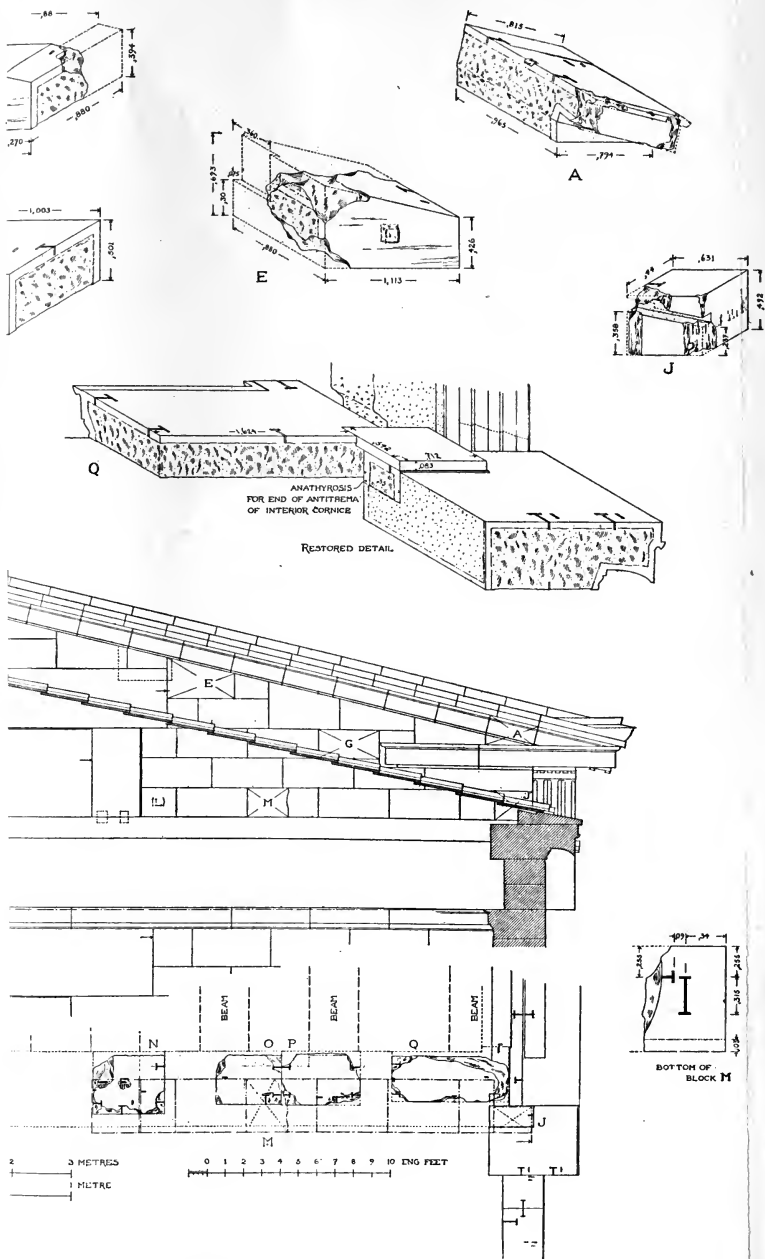
PROPYLAEA: RECONSTRUCTION OF THE SUPERSTRUCTURE OF THE





PROPYLAEA: RECONSTRUCTION OF THE GABLE ABOVE THE

VOL. XIV (1910) PLATE V



GABLE ABOVE THE GATE WALL

THE GABLES OF THE PROPYLAEA AT ATHENS¹

[PLATES IV-V]

I. THE CENTRAL BUILDING

WHEN Spon and Wheler entered the Acropolis early in the year 1676, they beheld directly above them "a beautiful building, which some regard as the Arsenal of Lysurgus. Perhaps they have their reasons, but I to be sure have mine for not believing them; for I am of the opinion that it is a temple, because it has a façade and a pediment like others." Thus writes Spon,² but Wheler³ rightly assumes that it was the Propylaea. The eastern façade had fallen long before, about 1645;⁴ its remnants must have been mercifully buried by dé-

¹ What was intended to be the final work on its subject, *Die Propyläen der Akropolis zu Athen* (Berlin, 1882), by Richard Bohn, has left much to be desired. Almost immediately after its appearance, in protest came the masterly articles by Wilhelm Dörpfeld, 'Das ursprüngliche Project des Mnesikles' and 'Über die Gestalt des Südwestflügels' (*Ath. Mitt.* X, 1885, pp. 38-56, pls. II-III; pp. 131-144, pl. V). Recently the American School has begun a detailed study of the building; Mr. Wood has definitely settled most of the still undecided questions in the design of the wings. For the central building we still are accustomed to rely upon Bohn; yet for practically every detail that is not actually *in situ*, Bohn needs to be corrected; and now that the reconstruction of the building has commenced, even small details have become of vital importance. The following is the result of the study of scattered stones on the Acropolis; the subject itself is due to a suggestion by Mr. Hill that two remarkable stones (H and J on PLATE V) might indicate what I have called a projecting tympanum wall. To avoid lengthy references, I mention here the other works which will concern us later: Stuart and Revett, *The Antiquities of Athens*, II, London, 1787, ch. V, pp. 37-42, pls. I-XI; J. Hoffer, in Förster's *Allgemeine Bauzeitung*, VI, Vienna, 1841, pp. 119-125, pls. cccxc-cccxcvi; F. C. Penrose, *The Principles of Athenian Architecture*, first edition, London, 1851, and second edition, London, 1888.

² J. Spon, *Voyage . . . de Grèce*, Amsterdam, 1679, II, p. 106.

³ G. Wheler, *A Journey into Greece*, London, 1682, p. 359.

⁴ J. R. Wheeler, *Cl. R.* XV, 1901, pp. 430-431.

bris, for they exist in large proportion to this day.¹ But the west façade was then complete; and since the ceiling of the west hall was still in a condition to attract the admiration of Spon and Wheler, its opposite support, the wall with the five gates, must have been in good preservation. We have sketches, showing the view from the west, made before and during the Venetian siege of 1687,² and immediately thereafter Verneda³ described the building and gave some measurements. But this was the last mention of the last remaining gable of the Propylaea. The entire superstructure probably collapsed during the siege, and after the Venetians had retired, Turkish drills⁴ made short work of the fallen remains. Stuart and Revett in 1751-53 saw the columns of the west hexastyle completely preserved;⁵ then, shortly before Dodwell's visit in or about 1806, the four central columns were deprived of their capitals and three upper drums,⁶ and in that condition they still remain. The two angle columns still support the epistylia between them and their antae, and on the north return a part of the frieze remains *in situ*. A fragment of epistyle face, another of its filler, a few blocks of Ionic epistyle returns which backed the Doric frieze, and portions of all three angles of the pediment with their acroterion bases, — these to-day must represent the west pediment. Although this was the last to fall, what we have of the superstructure is practically nothing, and for information we naturally turn to its exact replica, the east façade.

The superstructure of the east façade, though destroyed several years before that on the west, has had a better fate; and it

¹ Bohn, p. 20: "The east front carried a gable, but of this, as of the rest of the superstructure, only a few remains are preserved — some geisa, pieces of sima, and one block of the tympanum wall." The difference at the present time is in part due to the Acropolis excavations of 1885-90.

² Omont, *Athènes au XVII^e siècle*, Paris, 1898, pls. 29, 31, 36, 37.

³ Farnelli, *Atene Attica*, Venice, 1707, p. 316.

⁴ It is to be noted that this was the common fate of the west façade, of the upper part of the central wall, and of the ceiling; of these parts comparatively few fragments are left, and they frequently have been split by drills; so probably all fell at one time. The fragments of the east façade, on the other hand, show fractures only and no drill holes, and are in large part preserved.

⁵ *Antiquities of Attica*, II, ch. V, pl. 1.

⁶ Dodwell, *Tour through Greece*, I, p. 313.

is at this point that the Greek Archaeological Society recently began the restoration of the Propylaea. Here the six columns are practically complete, even to their capitals, except that of the column next the southeast angle; and this is preserved, a portion in the British Museum¹ and a fragment in Athens. Above the columns remain the inner facing of one span of the epistyle, a fragment of the outer face at the northeast corner, and portions of the return epistylia on both sides. The fragments now on the ground are so numerous that a reconstruction is easily possible, and the reassembling of these fragments reveals to us a few important principles of Greek construction and engineering (PLATE IV).²

Each span of the epistyle was normally composed of three beams set side by side—the epistyle face, its *antithema*, or backer, and the filler which lay between. But on account of the width of the central intercolumniation, the beams composing the epistyle here, necessarily half as long again as usual, were strengthened by being made fifty per cent thicker, so that the filler was here lacking; to diminish the weight, moreover, each of these colossal members has much of the useless material hollowed out in the manner of modern steel channel beams, where for some distance above and below the middle the strain from flexure is very slight. Throughout the superstructure we shall meet similar expedients for decreasing the load distributed over the central intercolumniation, which, in Greek Doric architecture, is second in size only to those of the Temple of Apollo at Selinus.³ Both these blocks of the central span are preserved,

¹ *Brit. Mus. Catalogue of Sculpture*, I, p. 260, No. 433.

² PLATE IV shows the reconstruction of the superstructure of the east façade with the original fragments. At the date of writing, August, 1909, nothing has actually been replaced on the building, though columns and walls are being straightened. Such new stones as are now prepared for insertion with the old are shown with their diagonals drawn. The capitals of the columns are shown in their original orientation; I, III, and IV are to be turned so that the original west sides will face east, and V and VI are to have the north sides toward the east. Capital II will be new; the plan of the original abacus I owe to the kindness of Mr. A. H. Smith, Keeper of Greek and Roman Antiquities in the British Museum.

³ Excluding the Olympieum at Acragas, where the epistylia were not beams, but were built up in coursed masonry, supported by the walls which filled the intercolumniations.

the outer face in two pieces; they were the first members of the entablature to be set in place, and therefore could be freely dowelled at both ends to the abaci of the capitals. Then they were clamped to each other at three points along the top and also, an extra precaution, in the vertical planes of the end joints. The epistylia next on the north and south were then lowered into place, pried against the central blocks, to which they were clamped at the ends, then clamped to each other along the top, and dowelled at their only free end. This same process was continued around the angles until the return epistylia had been completed.

The frieze shows similar precautions for relieving the central span of as much weight as possible, and here the attempt is so successful that the epistyle actually supported only the interior cornice and the ceiling; the weight of frieze, geison, and pediment was transmitted directly to the columns. For this purpose the central part of the frieze was composed of beams like the epistyle, merely decorated with triglyphs in relief.¹ A joint between a pair of these beams came exactly over the middle of the central span, as is shown by a dowel and a pry-hole on the epistyle below, 2.720 m. from the axis of either column; the next frieze joints toward north and south are shown by dowels on the epistylia to have been 2.720 m. outside the same two columns. Thus each of the frieze "beams" nearest the centre was a cantilever 5.440 m. long, exactly balanced with its centre above the axis of a column, and to be self-supporting they needed only to be evenly loaded; that south of the centre was laid first and dowelled at both ends. The joints at the ends of these cantilevers, necessarily coming exactly in the centres of metopes, were concealed by cutting back at these points and inserting loose metope slabs in grooves in one of the usual Doric methods. Of the two cantilevers, we have practically the entire length of that on the north; the other lacks only the triglyph and half metope at its south end. The rest of the frieze was built in the ordinary way, a triglyph and a metope-backer combined in a single block, with grooves into which the loose metopes were dropped.

¹ These were noted by Hoffer, *l.c.*, p. 121, and Bohn, *l.c.*, p. 20.

The *antithemata* of this course have an anathyrosis joint with the frieze and were clamped to it; but their west faces, with which nothing came into actual contact, are roughly picked with drafted edges. Of these we have two long fragments which fit together and form a great beam 5.440 m. long; it corresponded exactly to the frieze cantilever south of the centre of the façade, and, like it, was the first block laid in the series (with dowels at both ends); its companion to the north is missing.

Resting partly on the frieze blocks and partly on their *antithemata* were the usual Doric mutular geisa, in blocks 0.907 m. wide, each containing one mutule with a *via* (except the angle blocks); a symmetrical block with a mutule between two *viae* made the transition from the southern blocks on which the *via* was cut at the left of the mutule, to the northern blocks on which it was cut at the right. The plan of the dowel-holes and pry-holes on the tops of the frieze and *antithemata* (PLATE IV) shows that this symmetrical block was exactly in the centre, a rather unusual fact; in the east front of the Parthenon it is as much as nine blocks north of the centre.¹ We still have a Propylaea geison with a *via* cut on each side of the mutule, but its top finish and its height (that of the geisa forming the pediment floor is 1 cm. greater) cause us to assign it to one of the side returns; the central geison block of the façade then is missing.

The tympanum was constructed of orthostates, as was usual on the Greek mainland. Only one stone was known to Bohn,² and he was forced to obtain the slope of the pediment from a lower angle sima block with the acroterion base. We now have five large tympanum fragments, one from the south half and four (two of which fit together to form a single block) from the north, and these allow us to form a more accurate estimate of the slope. This is not the place to consider the problem in all its details: Figure 1 will show the method,—allowing for the horizontal curvature, and fitting together the existing stones by means of dowel-holes and pry-holes, and in a few cases setting-lines, until all find their original places. It

¹ *Ant. Denk.* I, pl. 58 c; east block No. 22.

² Bohn, *l.c.*, p. 20.

will be sufficient to state the slope which resulted, in comparison with those given by Penrose and Bohn :

Penrose	0.241 per metre = 1 in 4.142	13° 33' 00''
Bohn	0.237 per metre = 1 in 4.211	13° 20' 00''
Present study	0.240 per metre = 1 in 4.167	13° 29' 40''

The greatest deviation, the height of the façade to the apex, is 0.011 m. less than that given by Penrose and 0.034 m. more than that given by Bohn.

The numbers on Figure 1 give the order in which the various stones of either half of the pediment were set in place,

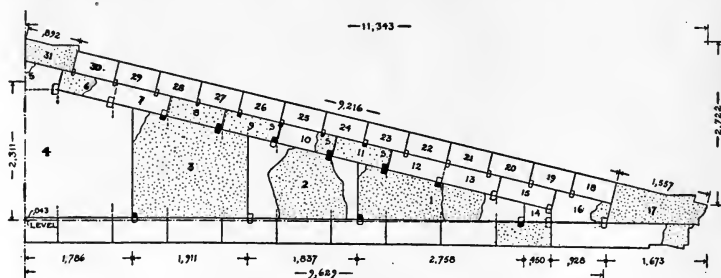


FIGURE 1. — RESTORATION OF EAST PEDIMENT, NORTH HALF.

as evidenced by the dowel-holes and pry-holes. The three tympanum orthostates laid first on each end of the pediment were, as we know by the T-clamps and the anathyrosis joint at their tops, backed by a wall, likewise constructed of orthostates as in the Erechtheum; one block from the south end still exists, and gives the thickness of the backing wall as 0.532 m. In the centre of the tympanum was a space of 3.572 m. to which no extant fragments belong. Though there still remains a tiny piece of the apex geison (5) showing that the two slopes were cut on a single block, — while the sima above (31) had a joint in the centre, — it is not enough to decide whether there was or was not a joint in the centre of the tympanum. We here miss the evidence which the lost central geison block of the pediment floor could have given. But dividing this central space into halves would make each of them much narrower than the other orthostates of the tympanum,¹ whereas giving the full space to

¹ In cases where a joint comes in the centre, the two central slabs are equal to the others at Aegina (Furtwängler, *Aegina*, pl. 34), slightly wider in the

a single stone, as in the "Theseum"¹ and the temple of Nemesis at Rhamnus,² makes it dominate the others, and also, acting as a beam, throw less weight on the long epistyle below. This would account for the exceptional length of the central space in the Propylaea. It seems especially probable when we note from the dowels that, contrary to usual practice, the central space was in this case closed last, so that it would naturally have been done with one stone. On the orthostate next adjoining, moreover, a peculiar cutting appears at the back,

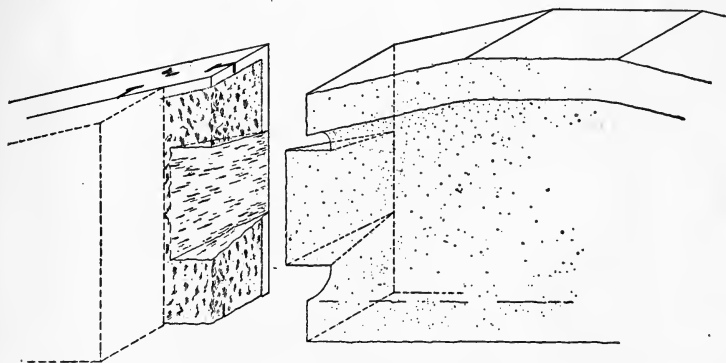


FIGURE 2. — KEY OF CENTRAL SLAB OF TYMPANUM, FROM BEHIND.

as if the central block had been keyed into it to prevent a forward inclination (Fig. 2). A similar case appears in the Parthenon, where the central orthostates, normally 0.42 m. thick, are hollowed out at the back until they are only 0.28 m. thick, their full thickness remaining only at the top and bottom edges; the centre of gravity was then so far from the centre of the bed, that to prevent any tendency to fall forward the orthostates were secured to the backing wall by iron clamps at intervals in the vertical joints.³ We must suppose that this same hollowing, for the sake of lightness, occurred in the Propylaea. The substitution of a stone key for iron can be explained only by the omission of the backing wall over the

Parthenon (*Ant. Denk.* I, pl. 58 c), and much wider at Bassae (Cockerell, *Bassae*, pl. 3).

¹ Sauer, *Das sogenannte Theseion*, pl. 2.

² *Antiquities of Attica*, ch. VI, pl. 2.

³ Penrose, *Principles*, 2d ed., pp. 45-46, pl. 16.

central intercolumniation, decreasing the load even more. This omission of the tympanum backers in striving for lightness was paralleled in the central part of the west pediment of the Erechtheum.¹

Further evidence is to be found when we attempt to bring these masses into equilibrium. It has been noted that the frieze cantilevers, in order to perform their function, needed to be symmetrically loaded. The horizontal geison in short blocks formed an evenly distributed load, and likewise the raking geison, when prevented from slipping by the heavy angle acroterion blocks; only the tympanum therefore affected the equilibrium.² If for a moment we were to suppose that the backing wall were continued behind the central slab of the tympanum, it would be found that while on the outer half of each cantilever the load, with a volume of 3.606 cubic metres, was 9743 kilogrammes, that on the inner half (under the centre of the pediment) would have been, with a volume of 5.397 cubic metres, 14,584 kilogrammes. The centres of gravity, moreover, would be so situated as to increase the disproportion; on the outer half of the cantilever the moment, in terms of volume (in cubic metres) times distance from centre of supporting column (in linear metres), would be 4.495, and on the inner half 7.749. The system of cantilevers, in this case, would have been useless. Statical reasons thus agree with the evidence from the form of the stone key in showing that to decrease the weight the backing wall was omitted at the centre. But the tympanum slab alone, if of the usual thickness, 0.485 m., would obviously have given a bed too narrow for the raking geison blocks above. It is to be noted that in the analogous case of the west pediment of the Erechtheum, the building accounts state that an angle block of the tympanum and the slab between this and the central slab were both 1 foot thick, and that their *antithemata* were likewise 1 foot thick; but the central slab itself had no *antithema*, and was thickened to 1½ foot to give a bed for the geison. Yet the total decrease in weight was considerable, and the reason for this unusual con-

¹ Jahn-Michaelis, *Arx Athenarum*, App. Epigr. 26, ll. 27-40.

² Any inequalities in the distribution of the weight of the central acroterion and the roof tiles could be allowed for in the wide bed above the column.

struction was much the same as in the Propylaea. If the central slab in the Propylaea is likewise thickened 50 per cent, to $2\frac{1}{4}$ feet or 0.736 m., we find that the moment of the central mass on the inner half of each cantilever is reduced from 7.749 to 5.592, more nearly, but not sufficiently, approximating the 4.495 of the outer half. But the very existence of the "key" implies the hollowing of the central slab behind to lighten its weight. The probable amount of this hollowing may be determined as follows: the moment of the mass on the inner half of the cantilever is to be reduced by 1.097 ($5.592 - 4.495$); the centre of gravity of the half of the central slab concerned is about 1.83 m. from the centre of the supporting column; and $1.097 \div 1.83$ gives the amount of marble to be cut out as 0.599 cubic metre. Leaving at the top and bottom a strip about 0.30 m. wide and of the full thickness of the stone, as in the Parthenon, we find that the rest of the surface must be hollowed out to a depth of about 20 cm., or 27 per cent of the original thickness of the slab. In the Parthenon much thinner slabs are cut out to a depth of 14 cm., or 33 per cent of the whole. According to these data I have restored the central slab as in Figure 2;¹ its general thickness, due to the hollowing, is practically that of the ordinary tympanum slabs, but a broad base is added, and at the top a broad shelf for the geisa.

¹ The widened central intercolumniations of some of the Ionic temples of Asia Minor must have required similar precautions, but for them we have little evidence. Great engineering skill alone could overcome the difficulties presented by, for instance, the sixth century temples at Ephesus (restored in *British Museum Excavations at Ephesus*, 1908, Atlas, pl. 13) and Samos, and Hellenistic examples at Ephesus and Sardis, in which the intercolumniations gradually widened from angles to centre, where the span is 8.57 m. at Ephesus! In a later type, the central intercolumniation alone was widened, as in the Propylaea at Athens; at Magnesia it was $1\frac{1}{2}$ times the usual intercolumniation (5.25 and 3.94 m., Humann, *Magnesia am Maeander*, p. 45), at Alabanda $1\frac{3}{4}$ times (3.794 and 2.710 m., unpublished details), somewhat less at Aizani (Texier, *Asie Mineure*, I, pl. 28) and Aphrodisias (though not so restored in the publications). At Magnesia alone we have the evidence; a doorway was cut in the centre of the tympanum, 1.35 m. wide and 2.45 m. high (Humann, *l.c.*, pp. 47, 60, 67), greatly relieving a span which was about as great as that in the Propylaea. In Graeco-Roman work in Asia Minor, the central epistyle was frankly removed and an arch substituted for it, as at Termessus (Lanckoronski, *Städte Pamphyliens und Pisidiens*, II, pl. 4), the triumphal arch at Damascus, and later work in Syria (H. C. Butler, *Architecture and Other Arts*).

Our fragment of the apex geison preserves at the top the two slopes cut on the same stone, but the bottom is broken away. When, in other buildings, the tympanum had a central joint, such a geison had its bottom cut as a saddle fitting over the joint.¹ But when the tympanum had no central joint, as in the Propylaea, such a geison seems to have been a pentagon with a wide base formed by the apex of the tympanum, which was truncated to receive it; this we find in the "Theseum,"² and an even more important analogy occurs in the Propylaea themselves, where in the gable which backs the east portico the apex of the tympanum is preserved with the same truncation (PLATE V, C). The central orthostate of the tympanum then assumes the hexagonal shape shown in PLATE IV. The first raking geison laid was this at the top of the pediment, dowelled on both sides; then the blocks on each side were lowered into place with tongs, pried against it, and dowelled only at their lower ends. Thus were set stones Nos. 6 to 13. Next came a small block in the angle of the tympanum, No. 14, against which both the tympanum slabs and their backers stopped, so that it must have been 1.021 m. from front to back; we have the backer which stopped against it at the south end of the tympanum (see PLATE IV), with a joint 0.318 m. high,³ which exactly fits the slope where a preserved setting line on a mutular geison determines the position of the corresponding joint at the north end of the tympanum. After geison No. 15 the combination block 16, of which we have a small piece, came; it is restored on the analogy of a similar block in the gable above the gate wall (PLATE V, A). The angle block No. 17 was laid last and dowelled from the back with the special T-dowel used at angles.⁴ The construction of the block must here be specially noted; to avoid a feather edge, the end block of the raking geison, instead of being cut on the angle horizontal geison below, as in the "Theseum," Erechtheum, temples

¹ Furtwängler, *Aegina*, pl. 34; Cockerell, *Temple at Aegina*, pl. XI, 7.

² Sauer, *Das sogenannte Theseion*, pl. 2; Durm, *Constructive Details der griechischen Baukunst*, Berlin, 1880, pl. 1.

³ It has a relieving surface on the bottom as on the tympanum slabs, showing that it was set on the pediment floor and not on other courses, as in Figure 2, for instance.

⁴ Cf. *A.J.A.* X, 1906, p. 51.

at Aegina and Bassae, etc., is cut on the same block as the angle sima, leaving the top of the horizontal geison flat. The same construction was carried out in the Parthenon,¹ but there the angle block has a rebate into which fits the sima next above. In the Propylaea no such rebate occurs (except for the overlap at the back of the sima); sima and geison joints both coincide at the angle block and are spaced from it.

In the case of the raking sima blocks the process was reversed; the first block laid was this at the angle, and then the blocks were successively pried from above and dowelled at the upper ends, the lower ends overlapping for about 10 cm. With the positions of the lower angle and the apex fixed, 11.343 m. apart horizontally and 2.722 m. vertically, the length of the slope is 11.655 m. An apex sima measures 0.892 m. along the top; the lower angle sima is 1.557 m. Subtracting these two abnormal simas from the slope, we have 9.216 m. to be divided into even lengths. Many of these ordinary blocks are preserved; complete ones measure 0.702 m. and 0.705 m.; our total would allow thirteen such blocks, with average lengths 0.709 m. Each apex sima was cut with half of the acroterion base, and these were clamped together at the top; they extended back much farther than usual, not merely to the first cover tiles, so that, as at Aegina,² the cover tiles fitted into cuttings in the sides of the acroterion base. It is probable that they extended back so far as to counterweight the forward overhang, on account of the thin tympanum below. It is noticeable that all three acroterion bases were of the forms found at Aegina; probably similar sculptured acroteria were intended, griffins on the rectangular bases at the lower angles, and a great floral acroterion on the flat part of the base at the apex, with a heraldic support on the saddle-like projection behind; we know that such floral acroteria were used on the Parthenon.

The profile chosen for the sima was the ovolo, bounded by a fascia below and a simple moulding above, which had appeared for the first time in the Parthenon and the Temple of Athena Nike; it occurred elsewhere, but only in the Periclean period,

¹ Penrose, *Principles*, pl. 17.

² Furtwängler, *Aegina*, pls. 35, 47; these blocks formed the evidence for Cockerell's "hypoethron" (*Temple at Aegina*, p. 18, pls. 5, 6).

in the temple of Nemesis at Rhamnus, the Porch of the Maidens in the Erechtheum, the Periclean Telesterion at Eleusis, and the Argive Heraeum. It was, however, the natural outgrowth of the Doric profile of the early Corinthian tiles and their marble copies as on the Temple of Zeus at Olympia and the Temple of Aphaia at Aegina.¹ But the decoration was unique. Instead of following the development of the anthemion, as in the Parthenon and the Temple of Athena Nike, Mnesicles employed the egg-and-dart,² which had formerly been left to minor mouldings and capitals of columns; he probably chose it because its lines fitted more closely the profile of the sima. He was imitated only once, in the Porch of the Maidens of the Erechtheum; the few times that the profile was afterwards used, in Eleusis and the Argive Heraeum, the decoration went back to the anthemion type.

Novelty is found also in the method of the disposal of rain water. As was usual in the Periclean period, the sima was returned along the flanks (the Parthenon and the temple at Bassae were exceptions). But instead of the universally employed lion-head water spouts, the sima was pierced with triangular holes by cutting out the background of ornament, through which the water flowed (see Fig. 7).³

This same cutting out of the ornament in silhouette for the disposal of water had appeared long before on the eaves sima of Temple C at Selinus⁴ and at Metapontum,⁵ and soon after the middle of the fifth century in a building at Olympia.⁶ After the Propylaea, the same scheme was copied in the egg-and-dart sima of the Porch of the Maidens.⁷

¹ Schede, *Antikes Traufleisten-Ornament*, Strassburg, 1909, pp. 12-13.

² See Penrose, *l.c.*, pl. 31, and Bohn, pl. XIV, 7.

³ See Bohn, pl. XIV; Penrose, 2d ed., p. 68, Fig. 9.

⁴ Dörpfeld, Gräber, Borrmann, Siebold; *Über die Verwendung von Terrakotten am Geison und Dache griechischer Bauwerke*, 41^{stes} Winckelmannsprogramm, Berlin, 1881, pls. II, 1, III; Durm, *Baukunst der Griechen*, 2d ed., p. 135.

⁵ Durm, *Baukunst der Etrusker*, 2d ed., p. 80.

⁶ *Olympia, Ergebnisse*, II, pl. 120, pp. 195-196. Here, however, a groove cut deeper than the other perforations conducted the water to the centre of each tile only, and this outlet was masked by a Gorgoneion as a false spout.

⁷ Inwood, *Erechtheion*, pl. 1 (in pl. 2 he wrongly restores lion heads), and the restoration by Ginain in D'Espouy, *Fragments d'Architecture antique*, I, pl. 15.

We now come to the consideration of another series of blocks which at present are scattered in the Propylaea and on the ground to the eastward. These also belong to a gable, the tympanum of which was, however, constructed not of orthostates but of coursed masonry, typical of Magna Graecia rather than of Greece itself. These blocks originally formed a part of the Propylaea, but (with one or two exceptions to be noted) have hitherto found no place in any restoration of the building. The foregoing pages leave no vacancies to be filled in the façade pediments; Dörpfeld identified the remains of the half gable of the southwest wing; and there remains for these additional blocks only the upper part of the wall which contains the five gates.

It was by means of this gate wall that Mnesicles overcame one of the greatest difficulties with which he had to contend. The Eleusinian copy of the central building, probably built under Antoninus Pius,¹ shows a scheme which may well have been a preliminary idea of Mnesicles; the whole, by means of a great platform, was built on one level, and the only gables were those on the two façades.² But one of the beauties of the Athenian Propylaea, as actually carried out, is that the rooms at different levels fit the natural ascent to the Acropolis. The plan called for hexastyle porticoes on inside and outside, of

¹ The colossal bust from the façade pediment was at first supposed by Philios (*Eleusis*, 1896, p. 59) to be that of Antoninus Pius. Frazer (*Pausanias*, vol. II, p. 506) and afterwards Philios (*Eleusis*, 1906, p. 82) thought that the building was erected by Hadrian. But the bust is not that of Hadrian, and I identify it with Antoninus Pius; the latter emperor, moreover, seems to have carried out extensive repairs at Eleusis at the instigation of the rhetorician Aristides. (Schol. on Aristides, ed. Dindorf, vol. III, pp. 308-309: 'Αντωνίνος ὁ βασιλεὺς, ἐφ' ᾧ Ἀριστείδης ἦν, . . . τὸν ἐν Ἐλευσίνι νεῶν πολυτελῶς ἐπεσκεύασεν.) This passage may, however, refer to M. Aurelius Antoninus, with whom Aristides was particularly influential (as in the case of the rebuilding of Smyrna after the earthquake of 178 A.D.), and who was also active in Eleusis, as is shown by inscriptions. Three fragments of the epistyle of the Eleusinian Propylaea (unpublished except by Lenormant, *Recherches archéologiques à Eleusis*, 1862, p. 46, of whose three fragments I have seen only one, with the W; the two others are not given by him) have remains of six colossal letters. These are sufficient to show that the dedicatory inscription was in two lines, in the second of which stood the name of M · A[ντήλιος Ἀντ]W[νεί]NOC, evidently as the dedicator of the building begun by his predecessor, whose name would have occurred in the first line of the inscription.

² *Antiquities of Attica*, ch. II, pl. 11.

exactly the same order, and therefore of approximately similar heights, with the result that the roof of the eastern portico had to be raised $4\frac{1}{2}$ Attic feet higher than that of the western hall. The break between the two roof levels was made at the gate wall, which was carried up high enough for the purpose and formed a third gable, with a visible tympanum which required finished blocks.¹

The present height of the gate wall is that of the lintel above the great central gate. The existing side walls enable us to

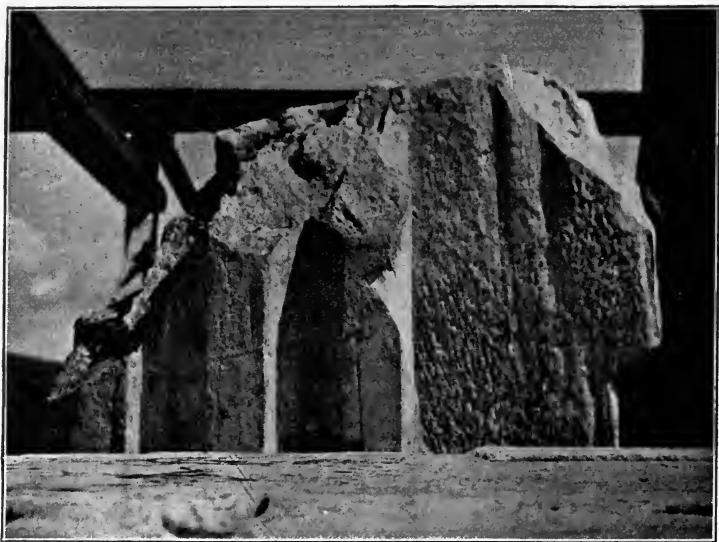


FIGURE 3. — ANGLE TRIGLYPH AT NORTH END OF GATE WALL.

restore on the gate wall,² an *epikranitis* course carrying the profile of the abacus of the anta capitals along the east face, backed by the interior cornice of the west hall; then the high orthostates in alignment with the epistyle *antithemata* of the east portico, faced on the west by the beams and *lacunaria* of the lower west ceiling. Opinions as to the construction above this point differ widely, for the following reason: The entablature of the east hexastyle is carried along the north and south

¹ See, for general appearance, Bohn, *l.c.*, pls. IV, VI, VII, VIII.

² See Figure 4 *c*. Of the courses here named only a few fragments of the *epikranitis* of the east portico are known.

sides only so far as to include five triglyphs, and then returns inward nearly in line with the middle of the thick gate wall.¹ The angle triglyph at the northwest corner is still *in situ* (Fig. 3). Upon examining it we notice, first, the weather line² left by the lower west roof tiles, which were cut to fit around it, showing that here at least the architect did not hesitate to allow his frieze to disappear gradually under the roof;³ second, that the triglyph is complete, not partly joint surface and partly finished like that on the return from the west hexastyle;⁴ and finally, that this triglyph has a slot to receive a metope, so that we seem to have a Doric frieze, and therefore a wall face, in the plane of the angle triglyph; that is, above the middle of the gate wall. On account of this triglyph and metope slot, Penrose⁵ restored a complete Doric frieze along this wall, though necessarily most of it would be below the roof of the west hall. Bohn⁶ preferred the other alternative and, ignoring the metope slot, carried a blank wall up to the edge of the triglyph. In Figure 4 appears, three times repeated, the section of the present lintel of the central gate (heavily outlined), and behind it the trace of the return of the entablature on the north flank (in broken lines); the bottom of the triglyph (which inclines inward 6 mm.) is only 0.724 m. from the east face of the gate wall. The structure above the lintel is shown as variously restored (*a*) by Penrose, (*b*) by Bohn, and (*c*) as in the present study. It will be seen that Penrose subtracted 0.065 m. behind the wall to allow a bearing for the slabs between the ceiling beams of the east portico, and restored a tympanum set back in the metope plane as in the east façade, 0.072 m. behind the triglyphs, so that his wall would be only 0.587 m. thick.⁷ Bohn made the wall 0.653 m. thick, setting it back on the plane of the metope, but keeping its east face flush with

¹ Bohn, *l.c.*, pl. VI.

² Bohn, *l.c.*, pl. XV, 5.

³ Even at the lowest point of the slope the triglyph was buried to a height of 0.358 m.

⁴ Bohn, *l.c.*, pl. XIV, 9. ⁵ *Principles*, pl. 29. ⁶ Bohn, *l.c.*, p. 20, pl. VIII.

⁷ In his first edition, Penrose mistook the position of the angle triglyph and also drew the gate wall one foot too thin; the latter he attempted to correct in his second edition, merely by adding a figured dimension; the fact that his tympanum wall as drawn on his plate 30 *scales* 0.770 m. may, therefore, be neglected.

the gate wall below, which made it necessary to build over the ends of the ceiling beams. Yet even this 0.653 m. seems too slight; all the coursed walls of the Propylaea have a thickness, with *werkzoll*, of 0.880 m.;¹ and that such a thickness

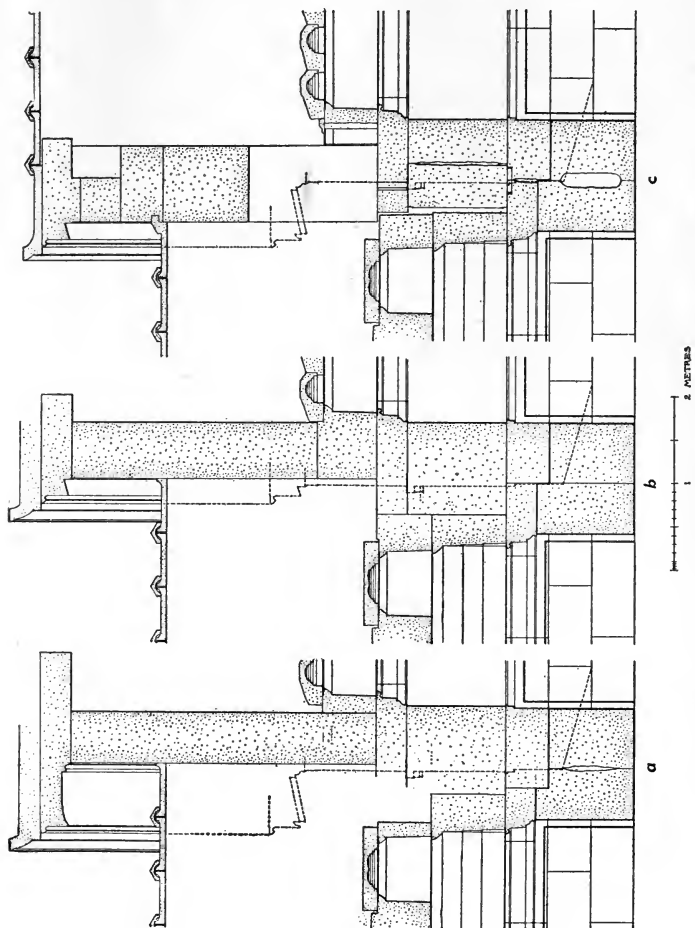


FIGURE 4. — SECTIONS OF THE GABLE ABOVE THE GATE WALL.

actually obtained in the tympanum wall is shown by the blocks later to be described (PLATE V, *C-G*, *R-L*), which formerly composed it.

¹ With the single exception of the gate wall itself, which is finished to 1.283 m. (originally 4 Attic feet, 1.30 m., with *werkzoll*).

A wall of this thickness, even if we placed it with its east face flush with that of the gate wall, must have projected on the west 0.156 m. beyond the plane of the angle triglyph. The fact that there was such a projecting tympanum wall is attested by the interior cornice of the east portico. The blocks of this cornice which formerly rested on the gate wall have a profile that is used throughout the main building; but they can be distinguished from the others by a process of elimination.¹ In this way we find for this cornice four blocks which have various lengths (1.940 m., 1.314 m., 1.195 m., and a broken piece at present 1.13 m. long), and various widths of bed (0.668 m., 0.735 m., 0.873 m., and 0.728 m., respectively); also they are treated at the back in different ways, two with anathyroses along the top, one finished smooth, and one finished with drafted edges. In spite of these differences, however, they possess common characteristics; they were secured to the stones below, not by single dowels but by pairs, unlike the two other cornice types 0.351 m. in height; each block has a T-clamp running back to some stone behind, so that the finish of the backs need not concern us (as it must have been concealed, though not perhaps in actual contact with other stones); and finally, each of the four blocks has a setting-line for a course above, with its face 0.305 m. back from the top of the course below the interior cornice. An examination of one of the blocks (Fig. 5) shows a bearing surface, "A," running back 0.375 m. for a ceiling beam of the east portico; beside this is another worked bed, "B," very narrow, for the slab filling the space between the ends of the beams; then comes the bed, "C,"

¹ Of the four types of Propylaea interior cornice with this profile:

(1) Blocks 0.491 m. high (0.140 m. of which is wall surface), 1.176 m. long, and bed 0.880 m. wide, for side walls of west hall (PLATE V), where most are *in situ*, a few on the ground, and one in British Museum (*Brit. Mus. Cat. of Sculpture*, I, p. 260, No. 435).

(2) Blocks 0.351 m. high, usually 1.200 m. long, bed 0.300 m. wide, to back the frieze of east and west porticoes.

(3) Blocks 0.351 m. high, usually 1.300 m. long, bed 0.590 m. wide, for west side of gate wall. Of these I know no fragments, the dimensions being given by cuttings on the bed prepared for them.

(4) Blocks 0.351 m. high, of unknown lengths and widths of bed, for east side of gate wall. To this series must be assigned all blocks not coming under the three other classes.

with its setting-line for the above-mentioned continuous course. Similar indications, though less well preserved, appear on the other blocks. We have, therefore, absolute proof that these came from the east face of the gate wall. The clamps which fasten them back-to-back to a course on the west side of the gate wall indicate that the tops of the two courses were on the same level, and therefore we may suppose bed "C" to have been continued on the stones to the west. One of the cornice

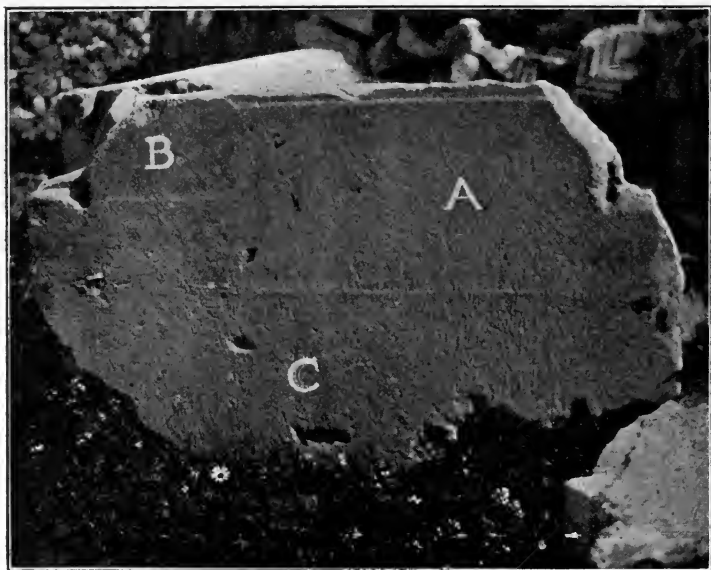


FIGURE 5.—TOP OF INTERIOR CORNICE BLOCK *P*.

blocks, *Q* (PLATE V), was cut in L-shape, and fitted in the angle at the south end of the gate wall; the short arm is now broken off, but a setting-line and a bed-cutting for its joint, on the *antithema* of the south epistyle, are 0.253 m. east of the gate wall. On the analogy of a completely preserved angle block which fitted in the southeast corner of the east portico, and was symmetrical with this, we must suppose that the short arm was about 0.246 m. long (measured on the actual bed). Therefore, the top of the course below the interior cornice (the high orthostates in alignment with the epistyle *antithemata*) was $0.253 - 0.246 =$ about 0.007 m. east of the gate wall, and the

setting-line on the top of the interior cornice was $0.305 - 0.007 = 0.298$ m. inside the east face of the gate wall. Since the angle triglyph is only 0.724 m. from the east face of the gate wall, our tympanum wall with a thickness of 0.880 m. must have projected 0.454 m.¹ west of the line of the bottom of the angle triglyph (Fig. 4 *c*), which had always been considered as determining the plane of the tympanum. It is to be noted that, as a practical advantage, this tympanum wall is very nearly centred on the thick gate wall below.

For a moment, for confirmation, we turn to the cornice of this backing gable. This was at first supposed, naturally enough, to have been exactly like that of the façades; thus we find it given by Stuart and Revett² in 1753, by Penrose³ in 1846, and by Ulmann⁴ in 1875. Their great cornice with an overhang of 1.025 m., balanced on a thin wall of only 0.587 m., is very distressing (Fig. 4 *a*). But Revett had found another geison with a very slight overhang; probably he noted merely its profile, for it was published as horizontal, "a piece of external cornice which was perhaps on the south side."⁵ This block still exists, lying in the Brauronian precinct south of the main building; it is, however, not a horizontal cornice, but fitted next to the angle of a gable. It was so drawn, with great inaccuracy, by Hoffer,⁶ who first assigned it to the backing gable. It was unknown to Penrose and Ulmann, and Bohn searched for it without success, though he accepted Hoffer's identification⁷ and so preserved the equilibrium of his thin tympanum wall, though the unsymmetrical overhangs of the cornice as seen on the north and south sides are very unfortunate. Hoffer's identification of this geison (PLATE V, A) is correct: the total height, 0.340 m., and the height of the separate members are the same as in the raking cornice of the main pediment, but the overhang beyond the tympanum is only

¹ $0.724 - 0.298 = 0.426$ m., part of wall east of triglyph.

$0.880 - 0.426 = 0.454$ m., part of wall west of triglyph.

² *Antiquities of Athens*, II, ch. V, pl. 4.

³ *Principles*, 1st ed., pl. 30.

⁴ D'Espouy, *Fragments d'Architecture antique*, I, pl. 2.

⁵ *Antiquities of Athens*, II, ch. V, p. 41, pl. VII, 4.

⁶ *Wiener Allgemeine Bauzeitung*, VI, 1841, pl. 391, Figs. 36, 37; pl. 392, p. 123.

⁷ *Die Propyläen*, p. 20, pls. VI, VII.

0.292 m., instead of the 0.815 m. of the main pediment.¹ That this sole remaining block should have come from a position next the angle is fortunate for us, since it has cut on the same stone, in accordance with the custom observed in the main pediments, the angle of the tympanum. Placing this in the plane of the tympanum wall (the various blocks of the thickness 0.880 m. will show that the entire wall up to the apex of the tympanum lies in one plane, cf. Fig. 4 c), we have the crowning moulding of the geison $0.292 + 0.454 = 0.746$ m. in advance of the bottom of the angle triglyphs, or, allowing for the 6 mm. inclination of the triglyphs, 0.752 m. from the top, and 0.752 m. is

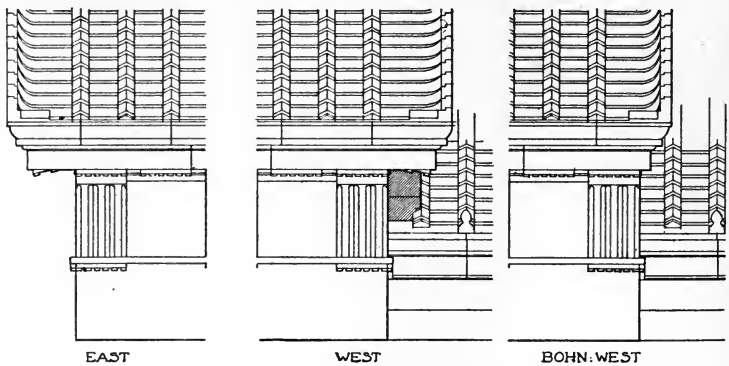


FIGURE 6. — ENDS OF NORTH ENTABLATURE OF EAST PORTICO.

exactly the overhang of the ordinary mutular geison. This coincidence lends sufficient support to the restoration of a projecting tympanum wall, and also enables us to revise Bohn's elevations of the north and south sides;² for, although in reality the geison of the backing gable had an overhang not much more than a third of that of the east pediment, the two were so arranged that when seen at one time, from the side, they appeared to be the same (Fig. 6). The details of this scheme must be considered later.

The sima of this gable has always been restored with a profile like that of the main pediments, though this seems too heavy for the abbreviated geison. Around the Propylaea are

¹ The tympanum of the main pediment is recessed slightly; the overhang of the geison beyond the triglyphs is 0.752 m.

² *Die Propyläen*, pl. VI.

six pieces of a sima which belonged to a pediment, some to the left slope, others to the right, as shown by their system of overlaps and rebates; one block has the complete length 0.700 m., and two fragments fit together and give the length 0.702 m., as in the main pediments; and the fascia below is of the typical height, 0.090 m. But the ovolo is abruptly cut off, without a moulded finish, at a height of 0.212 m. above the bed (PLATE V, *S*), whereas the typical pediment sima was 0.357 m. high. Penrose once used it to crown the walls against which the west wings lean,¹ in spite of the fact that these walls were never higher than they now appear; later he proposed that it should crown the side walls of the west hall,² a manifest impossibility, because we have the eaves tiles from these walls. The only possible place in the Propylaea for this sima is the cornice of the backing gable; the way in which it suits its geison may be seen in Figure 3 *c*.

With this low pediment sima meeting a higher one on the flanks of the portico, a peculiar disposition of the angle block became necessary. The top line of the flank sima must have been returned horizontally on the gable front until it intersected the sloping top of the low raking sima, as shown in PLATE V.³ While not ideal in appearance, it is not out of character with the other makeshift schemes in this part of the building; and we have proof that this was actually done in early Doric temples, as the hexastyles at Paestum and Temple *C* at Selinus.⁴

We turn now to the discussion of the blocks composing the tympanum itself. Ten present peculiarities which lead us to assign them to this gable; three have sloping tops which formed the bed of the raking geisa, and four have cuttings for roof tiles; eight have, or had, the regular wall thickness, 0.880 m., and two are of a special width, as we shall see. Again, leaving out of the question the blocks with sloping top, they seem to have the uniform height of $1\frac{1}{2}$ Attic foot used throughout the Propylaea (two are 0.492 m., one, 0.493 m., two, 0.494 m., and two, 0.501 m. high, the variations being no

¹ *Principles*, 1st ed., p. 62, pls. 28, 34.

² *Principles*, 2d ed., pp. 68, 69, pls. 29, 34.

³ Compare Figure 7.

⁴ Koldewey-Puchstein, *Die griechischen Tempel*, pp. 20, 21-22, 23, 104-105.

greater than occur elsewhere in the building); and even one of the higher blocks with a sloping top has an anathyrosis for the top of a horizontal course abutting on it $1\frac{1}{2}$ foot above its bed (PLATE V, *E*). In our consideration of the east pediment we found that the apex of the tympanum was 4.990 m. above the epistyle soffit over the central intercolumniation; subtracting the interior cornice and the epistyle *antithema* (0.351 + 1.138 m.), we have the height of the tympanum wall as 3.501 m. From this we must subtract the distance from the tympanum apex to the bed of the existing apex stone (see PLATE V, *C*), 0.548 m., leaving 2.953 m., which should be divided into regular courses;¹ and we find that it gives exactly six courses of an average height of 0.492 m. It remains now to decide whether the block had the regular length too, the 1.176 m. used elsewhere in the Propylaea.² I think it can safely be said that this was the case. Of our ten blocks, three (*H*, *J*, and *K*) are cut in half lengths (0.585 m., 0.631 m.,³ and 0.600 m. long); another is of complete length (1.193 m.); with the course above breaking joint at its centre, while a fifth (*N*), now broken in halves, also had the course above jointed a half block length from its preserved end. The outer ends⁴ of blocks *D* and *E*, and of *F* and *G*, as placed by other considerations, are separated by intervals exactly divisible by 1.176 m.; and the interior cornice blocks *O* and *P*, which fit together, have on their top scratch lines for a stone 1.184 m. long. So we must restore a tympanum wall built of ordinary blocks $0.492 \times 1.176 \times 0.880$ m. It may be noted here that the workmanship was comparatively poor; blocks of defective marble, perhaps rejected from other parts of the building, are here used (one, *F* on PLATE V, was cut down from an original

¹ That the apex stone rested on the top of a regular course, and not in a pocket, as, for instance, in the Temple of Hera at Selinus (Hittorff et Zanth, *Architectur antique de la Sicile*, pls. 37, 46), is shown by the fact that it is dowelled at the bottom.

² Except in the west and north walls of the Pinakothek, where the blocks were increased to the length 1.250 m. on account of the triglyph spacing.

³ This is exceptionally long because it was at the south end of the wall and made up the difference caused by an off-centring of the joints, which appears plainly in the apex block *C* (PLATE V).

⁴ These blocks are in themselves of special lengths, so that the ends toward the axis of the gable will not agree with the joint spacing.

length of 1.176 m., as shown by the position of the boss; another had an anathyrosis for a block to abut at right angles, but was here used as an ordinary wall block).

The apex block *C*, with the ridge beam socket, falls immediately into its place; its centre is 0.031 m. north of the axis of the gable, and here we meet a secondary axis, used throughout for the joint spacing.

Two blocks (*D* and *E*) with sloping tops and sockets for purlin beams of the east portico require more consideration. They were symmetrical with respect to each other. For their positions our evidence is that their lower beds must agree with the regular course joints, and that dowel holes on their tops must agree with joints of the raking geisa. The preserved dowel holes on block *D* indicate joints about 0.88 m. apart. Now the entire length of the raking geison on top may be obtained from the east pediment as 11.428 m. Of this the apex geison, as determined by its truncated base, occupied 0.462 m., and from the east pediment we obtain the length on the slope of the lower angle geison as 1.403 m. Against the latter fitted the preserved geison *A* at the south end, with the length of 0.815 m.; this was not the regular length of the geison blocks, but was a special length determined by the fact that cut on the same stone is a vertical tympanum wall joint which was made to agree with the other tympanum joints.¹ Subtracting from 11.428 m. our three main blocks, the remainder is 8.748 m., which will give ten average geisa of 0.875 m. Remembering that geisa were dowelled at their lower ends so that the dowel holes must be *above* the geison joints, we find that blocks *D* and *E* agree with the horizontal course lines only when placed as on PLATE V. Their outer ends fall eight regular block lengths apart; but *D* and *E* are, in themselves, shorter than usual, so that between them we have more than six block lengths.

Four preserved blocks show cuttings for the reception of roof tiles (PLATE V, *F*, *G*, *H*, *J*). Such cuttings exist also for the

¹ This is seen in a restored symmetrical geison, *B*, PLATE V, whose vertical joint is $7\frac{1}{2}$ block lengths north of the centre of *C*; because of the off-centring of the joints, geison *A* is a little farther away, but for ease of workmanship the geison lengths were made uniform on both slopes and the difference taken up in block *G*.

roofs of the west wings, about 0.140 m. wide, with jagged additions for the *ιδάντες* or roof boarding at the bottom and for the tiles at the top, bringing the total width in places up to about 0.220 m.; the workmanship is very careless. Our four blocks, on the contrary, have cuttings 0.075 m. wide, very carefully finished, and following the outline of each individual tile. They cannot belong to the Pinakotheké,¹ and we must assign them to the gate wall. It is important that we should know exactly what part of the tile was inserted in the cutting. In the west wings the top of the cutting with the tile outline was exactly level with the tops of the cover tiles; but the vertical risers which appear in the cuttings, instead of projecting like the cover tiles, 0.065 m. beyond the risers of the flat tiles, were exactly above the latter. Therefore, the cover tile against the wall was cut on the same stone with the flat tile. This same relation of cutting to tile we must assume in the gable above the gate wall; in fact, in no other way can blocks *H* and *J* be made to fit both the tile cuttings and the wall course levels. The section through the tiling of the west hall, PLATE V, is drawn like that of the east portico (as determined by the joints of the east pediment sima, allowing for the overlap), but $4\frac{1}{2}$ Attic feet lower; so drawn, it exactly fits the eaves tiles which rested on the geisa of the side walls.² A similar outline 0.105 m. above the flat tiles (the height of the cover tiles) should be the upper line of the tile cutting in the tympanum wall.

If we take first the pair of short blocks *H* and *J*, and make them fit at the same time both the course lines and the assumed tile cutting, it appears that they will do this at only one place, namely, on the lowest course with their outer ends on a line with the inner side of the angle triglyphs. They are so drawn in elevation on PLATE V, and again in plan, where the lowest course of the tympanum wall is represented in broken outline. It will be seen on the plan that *H* and *J* thus lie above the easternmost blocks of the side wall geisa of the west hall. But the top surface of these geisa is 0.094 m. below the bed of blocks *H* and *J*. This difficulty was met in the way shown in

¹ Which they could not fit in any case.

² One of them drawn by Penrose, pl. 34, and Bohn, pl. XII, 7.

the detail of the interior cornice angle block *Q*, PLATE V; when this is set in place, a rectangular cutting at its southwest corner falls exactly in line with the metope backer of the angle triglyph, and also in line with the back of the south wall geison, which here is finished with an anathyrosis joint.¹ On this south geison, and likewise on that at the north (see Fig. 3), a bed, raised 0.011 m., extends from the back of the stone to the edge of the angle triglyph, with a dowel hole at its outer end; the cutting in the interior cornice is 0.083 m. deep, so that bottom of cutting and top of raised bed are exactly on the same level. The exterior geison and interior cornice were then connected by a slab 0.083 m. thick, making a level and continuous bed for the tympanum wall. It appears then that Bohn was correct in refusing to recognize the metope slot on the triglyph; it is merely an ordinary angle triglyph, and its metope backer was rudely hacked off to give room at the point where the tympanum wall assumed its full thickness, and still more undercut below to allow the passing of the interior cornice.

At the outer ends of these short blocks *H* and *J* we have the returns of the projecting tympanum wall to the plane of the angle triglyph. And, in fact, these ends of the stones present finished surfaces; the tile cutting is not carried around, but for this slight distance the tile merely abutted on the stone, just as it did on the adjacent angle triglyph.² A restoration of this portion appears in Figure 7.³ The arrangement of the geison at this point is worthy of notice; as it turns the corner, with the full overhang of 0.752 m., we find the usual mutule over the triglyph, and then the wall breaks forward. The geison, however, did not break out around the wall, but was carried directly along with all simplicity; the overhang as a result was reduced to 0.292 m., as we know from the raking geison.

Blocks *H* and *J* fix the ends of the tympanum wall as 19.316 m. apart, or 0.500 m. more than sixteen wall block

¹ The last block of the north wall geison is hewn off shorter and so gives no evidence.

² A weather line on the return of stone *J*, 0.335 m. below the top, exactly fits the eaves tile which was set against the block.

³ This is shown from a similar viewpoint, but in its present state, by Bohn, pl. XV, 5.

lengths. On account of this extra quantity, 0.500 m., the joints in the lowest course at least could not have coincided with those of the upper joint system, which were spaced on either side of the centre of block *C*; the lower joint system was spaced from the ends of the tympanum wall. The two systems were separated, for a certain distance, by the horizontal geison. We now place the two blocks *F* and *G*, with the cuttings. They will coincide with the tile outline and with the

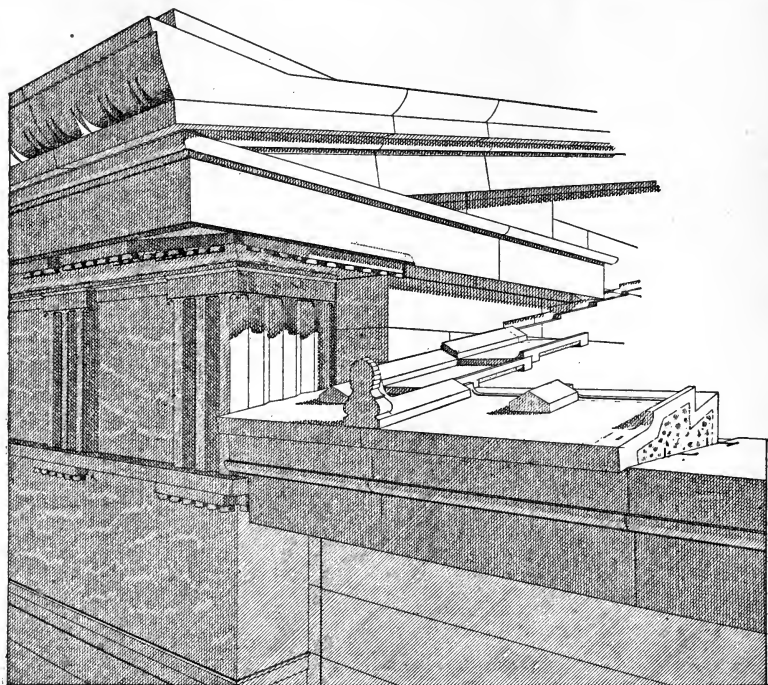


FIGURE 7.—NORTH END OF TYMPANUM WALL.

course lines at the same time only if we place them in the third course of the tympanum wall; here they occupy part of the height of the horizontal geison, which therefore probably stopped on the blocks next outside them. Like *D* and *E*, these blocks are of special length, about one metre; and when in position, their outer ends are found to fall into the upper joint system, and their inner ends into the lower joint system. Here then occurred the necessary attempt to reconcile two

systems which had nothing in common. Figure 8 shows the blocks already placed and their relations to the two joint systems; to avoid confusion the off-centring of all the joints, though drawn on PLATE V, is here omitted.

In view of the elaborate precautions for relieving the epistyle in the centre of the façade, it may well be inquired whether something to the same effect may not have been carried out

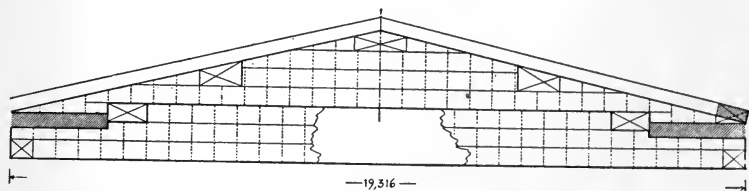


FIGURE 8. — THE TWO JOINTING SYSTEMS OF THE TYMPANUM WALL.

over the lintel of the great central gate, which is composed of a pair of beams each 6.697 m. long. The evidence from the tympanum wall is fourfold.

First, a glance at Figure 8 is sufficient to show that the lower jointing system could not have been carried through, with equal spacing, from end to end of the wall; there must have been an interruption somewhere in the middle. Blocks *F* and *G* tell us that between them the lower joint system was carried up to a height of three courses. Therefore the interruption, whatever it was, must have been of the height of three courses.

Second, there are some ordinary wall blocks, 0.493 m. to 0.494 m. high and 0.880 m. wide, which must be assigned to this wall for the simple reason that those extant are more than enough to make up for the deficiency elsewhere in the Propylaea. I shall here speak only of two which present marked peculiarities. On the bottom of one (PLATE V, *M*) appear stains taking the exact form of the lead around the clamps in the stones below it; one such trace, 0.255 m. inside the east face of the wall, exactly fits the western of the two series of clamps on the top of the interior cornice; the other is at right angles to the direction of the wall, and can only be the trace of a clamp which bound this interior cornice to the course behind it. In short, it is exactly the imprint that was given by the

clamps on the existing interior cornice block *O*. We must then place *M* in the lowest course, in the middle of the south half of the tympanum wall. It has another important characteristic, a weather line along the bottom about 11 cm. from the west face; it is due to the fact that the narrow course behind the interior cornice stopped 0.103 m. inside the west face of the tympanum wall (Fig. 4 *c*), as we know from the anathyrosis on the back of the side wall geison and the raised bed under stones *H* and *J* (PLATE V, detail *Q*). This same weather line appears on another stone, *K*, which is thus identified as belonging to the lowest course, even though it is so short that it lacks the trace of the clamp at right angles. It shows, however, the stain of a clamp connecting two interior cornice blocks. Its importance is that it is a half block, the north end with an anathyrosis joint and a clamp to the adjoining block, the south end rough, with drafted edges, and without a clamp. It is dowelled below at this drafted end, and at this same end has dowels above, so that two courses at least ended one above the other. This, therefore, forms an end of the tympanum wall toward the south, and in a very unfinished manner; but in stone *J* we already have the real south end of the tympanum wall. There must have been an opening allowing ends somewhere in the centre.

Third, block *N* of the interior cornice (Fig. 9) shows on its top two great holes; these certainly contained dowels, for they are now partly gouged out, the infallible sign of the mediæval seeker for lead, and they show traces of having first been cut to the ordinary dowel width, and then enlarged. Instead of the usual holes 0.06 m. deep, 0.015 m. wide, and 0.08 m. to 0.09 m. long, these are 0.09 m. deep, 0.03 m. wide, and 0.13 m. and 0.16 m. long. Just south of these came the end of a wall block, as is shown by a dowel and a pry-hole; just north of them is another small dowel; in front of them was the end of a ceiling beam. Placing this cornice block in position by making its ceiling beam bed and tympanum wall joint fit the parts for which they were destined, we find that it is limited to one spot, and this is such that the great dowel holes come exactly above the south jamb of the central gate. The explanation of these dowels may be looked for in the contemporary jambs of

the north door of the Erechtheum; here the bottoms were secured by great dowels of very similar appearance, with cuttings 0.12 m. deep, 0.03 m. wide, but in a T-form 0.17 m. \times 0.16 m., the base of the T reaching to the back of the jamb, so that the lead could be poured in. In our case, where the dowels were set 0.02 m. to 0.05 m. inside the line of the tympanum wall, and parallel to it, sinkages 0.008 m. deep, the full length of the dowel, led out into free space 0.025 m. beyond the tympanum wall, and conducted the molten lead evenly to all corners.¹

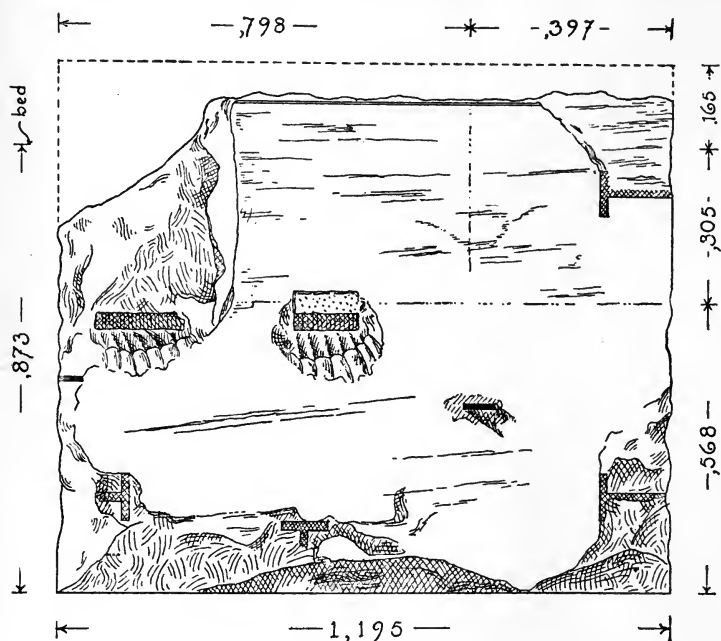


FIGURE 9.—TOP OF INTERIOR CORNICE BLOCK N.

It was the prototype of the Roman method, in which a narrow channel ran to one corner of the dowel. On these dowels, then, we restore piers exactly above the gate jambs; their dimensions must have been, from front to back the 0.880 m. of the wall, the width about 0.80 m., as fixed by the two small dowels (one

¹ In the Propylaea these dowels themselves were, as usual, about 0.008 m. thick, but since they had to be fixed in the bottoms of the stones above before the latter were lowered into place, inaccuracies of measurement were allowed for by making the cuttings in the lower stones 0.030 m. wide.

in the last wall block and one in the side of the pier itself), and the height, as determined by the lower jointing system on Figure 8, three courses. The distance from the interior cornice joint at the south end of this block, *N*, to the end of the tympanum wall stone, as marked by the dowel, is 0.395 m.; on the bottom of stone *K*, the distance from the interior cornice joint, as indicated by half the length of the double-T clamp stain, to the drafted end of the stone is 0.395 m. Stone *K*, then, rested on a symmetrically placed replica of cornice *N* above the north jamb of the central gate. Stone *K* and the two courses above it ended without quite coming into actual contact with the piers, and the reason is evident. That the weight of the mass above might not merely be thrown sidewise and transmitted course by course to the lintels of the lower doors, the tympanum wall was not bonded at all with the piers, which, standing above the jambs of the central gate, alone carried what we must now restore, a great lintel.

Fourth, the fact that blocks *D* and *E* are of special lengths, so that their inner ends fall short of what should be the joints by 6 cm. in each case, is still unexplained. Whatever abutted on them must have been prolonged beyond the usual joint lines, and now that we have erected the two piers in PLATE V, it appears that these unusual features were the ends of the great lintel which rested on those piers. Such a lintel must have been two courses high, and would fall into the fourth and fifth courses of the tympanum wall. In this connection comes the extra anathyrosis at the inner end of stone *E*, even with the top of the fifth course; in other words, adjoining the anathyrosis at the top of the lintel.

I think that the facts adduced above prove that there was something unusual in the middle of the tympanum wall, that here was an opening lined by heavy jambs which supported a great lintel, forming a relieving space 1.476 m. high and about 4.62 m. wide (a little greater than the opening below) above the lintel of the central gate.¹ It was entirely below the roof

¹ We may suppose that this same principle of a relieving superposed lintel was carried into execution above the longer lintels of the Parthenon doorways, although for them data have never been gathered. The method was not unique; a similar device at Magnesia has already been noted. And in the "Temple of

of the west hall, and at the same time behind and above the ceiling beams of the east portico, so that it did not need to be closed. The ridge beam of the west hall, which abutted on the relieving lintel, would not have needed a socket; as above each of the three pairs of Ionic columns, it was probably here supported by a cross-beam (*μεσόμνη*) with struts (*ὑποθήματα*). That no fragments of posts or lintel have yet been identified is not surprising when we consider the scarcity of remains of those portions of the building which fell in 1687.

The west hexastyle had a suggestion of a backing gable analogous to that of the east portico; but since here the roofs

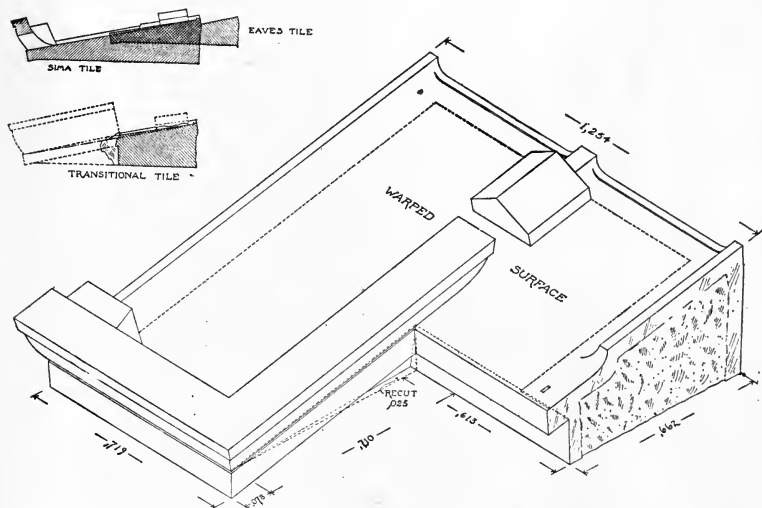


FIGURE 10. — GABLE ANGLE BACKING THE WEST HEXASTYLE.

were on the same level, the gable was extremely rudimentary. The roofs of the two proposed halls facing east were to abut on the side walls of the main building at such a high point that, although the main cornice could have been uninterrupted, the epistyle and frieze had to be omitted. Therefore the mutules disappeared from the geison, which was correspondingly reduced

Concordia" at Agragas, where a doorway is pierced in each of the four triangular walls which subdivide the roof space, that above the naos door is made wider than usual to relieve the lintel. (Koldewey-Puchstein, Fig. 156, and Durm, *Baukunst*, Fig. 141, show the similar but narrower opening over the epinaos columns.)

in overhang (from 0.752 m. to 0.584 m.);¹ and this, together with the fact that the side walls of the west hall are set 0.513 m. behind the top of the triglyph, necessitated breaking back the geison for 0.681 m. The slope of the roof therefore stopped with the eaves tiles above the reduced cornice at a higher point than with the sima tiles above the cornice of the order (Fig. 10 *a*). All the adjustments necessary here were carried out on a single stone for each side of the building; that from the south side still exists, cut as a double tile (Fig. 10 *b*). Its west joint coincides exactly with the sima tiles of the west portico, which it adjoined. The entire east half of the block, finished as an eaves tile without a sima, was set so far behind the west half as to align with the tiles above the reduced cornice.² To make the transition between the two, the sima returned in the form of a gable angle, but died away when it met the tile above the reduced cornice. The amount of the slope of this sima is taken up by a fascia 0.161 m. high, inserted between the hawk's beak of the geison and the overhanging nosing of the eaves tile.³ This fascia is elsewhere cut on the geison blocks, but in our transition block it was cut with the tile so that the bed joint might correspond to that of the sima tiles.

I have here confined myself to the study of the four gables of the main building: a fifth, that of the southwest wing, has now received additional details which must be treated later. Of the two main pediments, that of the east façade has of necessity served as the type, but the same principles held true for both. It has shown us a systematic attempt to lighten the superstructure, for the width of the central intercolumniation, from soffit of epistyle to apex of pediment; using thicker epistylia⁴ with an exaggerated hollowing-out of material,⁵ form-

¹ For this reason also the height was reduced by omitting the sima and using a simple eaves tile.

² Since the eaves tile has the usual roof-tile slope, while the sima tile, about twice as long but omitting an additional tile riser, has a steeper slope, the cutting of the two on the same stone necessitated some slight warping of the surface.

³ The acroterion base, shown by Penrose (2d ed., p. 68), was here omitted.

⁴ Bohn, *l.c.*, p. 19, loses the point in supposing that the two-beam type of epistyle was continued all along the façade.

⁵ Remarked by Penrose, *l.c.*, p. 71.

ing the frieze in great cantilevers,¹ and making the central orthostate of the tympanum exceptionally long, to act as a beam, lightened by hollowing behind, and with the tympanum backing omitted, until all parts above the frieze exactly balanced on the cantilevers. Another system, that of the superposed lintel, was employed in the backing gable of the east portico in the attempt to relieve the lintel of the central gate. That of the eastern façade we shall soon see reconstructed with the original stones; but the gable above the gate wall, represented by twenty-two fragments scattered about the Acropolis and by a fragmentary angle triglyph *in situ*, will probably be known only from architectural drawings.

II. THE SIMA OF THE SOUTHWEST WING

The unexpected abbreviation² of the southwest wing of the Propylaea necessitated a wall which, in order to close the incomplete hip roof on the south, was carried up in the form of a hall gable, forming the fifth gable in the building. The horizontal entablature was returned on this south wall for only the width of the anta; the geison was stopped by a plain projecting block against which the mouldings abutted (Fig. 15); and beyond this rose the coursed masonry wall, which finished at the top in a ramping outline which was first noticed by Professor Dörpfeld. He proved that on this ramp wall fitted a series of geisa which had been built into the Florentine tower, and which Bohn had used, in spite of their exceptional forms, to show that a gable had existed above the north front of the southwest wing; Dörpfeld found that there had been eleven geisa, of which he had nine; one ordinary block was missing, and likewise the angle block which had evidently been broken up on account of its awkward shape, useless for building into a wall. I shall, therefore, merely add some details to what has already been published by Dörpfeld.³

In the first place, however, a slight change must be made in Dörpfeld's arrangement of the raking geisa. On their tops are pry-holes; when two happen to appear on the same stone, they

¹ This was first noticed by Hoffer, *l.c.*, p. 121; see also Bohn, *l.c.*, p. 20.

² W. Dörpfeld, *Ath. Mitt.* X, 1885, pp. 41-47, pl. II.

³ *Ath. Mitt.* X, 1885, pp. 131-144, pl. V.

are about 0.635 m. apart, and so are clearly intended for the type of roof tile used in the west wings of the Propylaea, with an exposed length (on the slope) of 0.637 m. The geisa must, therefore, be arranged so that all the pry-holes will be uniformly spaced, and this causes the missing regular block (which Dörpfeld names *E*) to fit the fourth place, counting from the lower angle, instead of the third.

What rested on these geisa has remained in great uncertainty. Bohn, placing them in pediments facing toward the central building, admitted that their sima could not be identified, and restored one with an ovolo profile reduced from the main cornice.¹ Penrose, who placed the geisa on the wall to which they actually belonged, also restored an ovolo sima without evidence.² Dörpfeld, and, more recently, Wood, found no evidence which could be brought to bear upon this point. Whether these roof tiles were faced by some sort of sima, or by a high rim, as were the great tiles over the niches connecting the west wings with the central building, or merely by an overhanging nosing, as elsewhere on the west wings, remained unknown.

An important fact may be deduced from the geisa themselves. We have the stone (following Dörpfeld, it may be called *F*) which fitted next to the missing angle block (called *G*); it is noticeable that the lower joint of *F* coincides with a roof tile joint indicated by the pry-holes; both series of dimensions were, therefore, spaced from this point of coincidence. It is the same as what we found in the main pediments of the Propylaea; it can only be the result of the same gable angle construction, cutting the angle geison on the same block with the angle sima above. So the missing angle geison *G*, if found, should give us also the finish of these roof tiles.

In the centre of Figure 11 appears a small fragment found on the Acropolis, just northeast of the Propylaea. Below, it has a hawk's-beak moulding of exactly the same profile as that crowning the geisa of the west wings; above, we find part of a sima with a fascia of exactly the same height, forward inclination, and projection beyond the hawk's beak that we find in the nosing of the eaves tiles of the west wings—just as the

¹ Bohn, *Die Propyläen*, p. 23, pls. VII, X.

² Penrose, *Principles*, 2d ed., p. 68.

nosing of the eaves tiles of the side walls of the main building is repeated in the fascia of the sima of the main order. It was part of a gable, since its joint has the typical rebate for the overlap of the next sima and tile above; therefore, it belongs to the only gable connected with the west wings; and the rebate is at the right joint of the block, so that it came from the left slope of a gable, the only slope that appeared in the hall gable of the southwest wing. But unlike the other blocks of this gable,



FIGURE 11. — THREE SIMA FRAGMENTS ON THE ACROPOLIS.

geison and sima are here cut on the same stone, and, therefore, it can belong only to the missing angle stone *G*.

Though only a fragment, this shows that the sima had a reverse curve as if it were a *cyma recta*, unlike anything else in the Propylaea. By the aid of this fragmentary profile I was able to identify two other fragments (shown at left and right of Figure 11), and these give the complete profile of a so-called "Ionic sima," which in the Propylaea must have occurred in a startling combination with the Doric hawk's beak (Figs. 12 and 13). Besides the evidence of the identity of profiles, the two sima fragments themselves present fractures which exactly fit each other and give a complete length of 0.6355 m., which suits the regular tile length of 0.637 m. in the west wings, but totally disagrees with that of the tiles of any other building on the Acropolis.

We are now for the first time able to associate with the Propylaea a *cyma recta*, and this becomes of importance when

we notice that this profile, the "Ionic sima," is not in regular use until well after the fifth century. A review of its development, however, will show that there is nothing inconsistent in this seeming mixture of Doric and Ionic elements, and that we

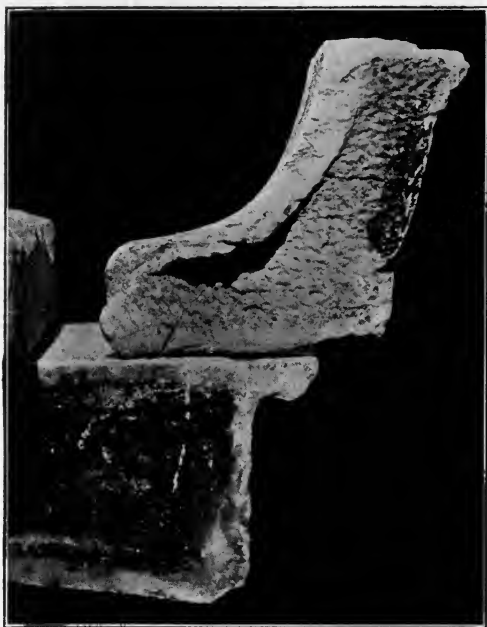


FIGURE 12. — THE RAKING CORNICE OF THE
SOUTHWEST-WING.

have here one of the steps in the history of architectural form.¹ The earliest suggestion of the *cyma recta* is seen in the Doric hawk's-beak moulding, especially after it was refined and undercut as a reverse curve.² Of the positions in which the hawk's beak was used, that which most concerns us is its frequent occurrence as the topmost moulding of a complicated series decorating the terra-cotta facing of poros geisa, as in temple C at Selinus;³

above this was some sort of sima. This use of the hawk's beak crowning the geison later became characteristic and was perpetuated in poros and marble throughout Greek

¹ I treat this question the more fully because the latest authority on the subject, M. Schede, in his *Antikes Traufleisten-Ornament* (Strassburg, 1909, p. 14), merely says of the "Ionic sima" that it is related to the Doric hawk's beak, that it appeared in the provincial temples of Bassae and Messa, and finally became standard in Ionia in the fourth century.

² In an unusual local development in the "Poseidon" temple at Paestum, an almost perfect *cyma recta* is used instead of the hawk's beak on the frieze *antithemata* and the anta capitals; but this is without further significance, having had no influence elsewhere.

³ Dörpfeld, Gräber, Borrmann, Siebold, *Über die Verwendung von Terrakotten am Geison und Dache griechischer Bauwerke*. 41^{stes} Winckelmannsprogramm, Berlin, 1881, pls. II, 1, III, IV, 1.

Doric architecture. But in the archaic period it sometimes happened that this entire series of mouldings was raised *above* the geison and in itself formed the sima, with the hawk's beak as the topmost member; this is illustrated by examples from temples *C* (gables only)¹ and *F*² at Selinus, the temple of Heracles at Acragas,³ a fragment from Olympia,⁴ and later in a limestone sima of the early part of the fifth century from the temple at Himera.⁵ This is but a step from the sima in the form of a *cyma recta*, and once, in a building at Olympia

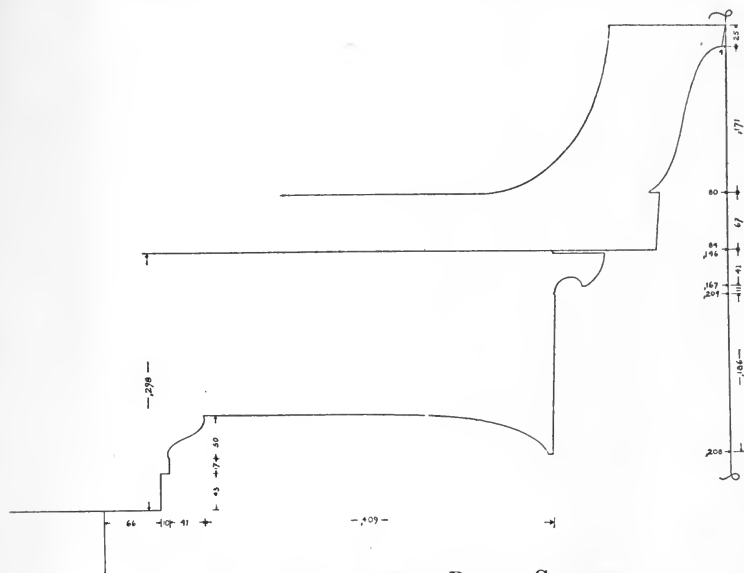


FIGURE 13.—PROFILE OF THE RAKING CORNICE.

(perhaps one of the earlier treasures), this step was taken, and we find a terra-cotta sima with the true *cyma recta* profile — and yet, in recognition of its hawk's-beak origin, it is painted with the vertical leaf ornament characteristic of the hawk's

¹ Dörpfeld, Borrmann, *et al.*, *Terrakotten*, pl. II, 2, 3.

² Hittorff, Zanth, *Monuments antiques de la Sicile*, pl. LVI, 1, 2; Koldewey-Puchstein, *Die Griechischen Tempel*, p. 119; Durm, *Baukunst der Griechen* (2), pp. 135, 137.

³ Hittorff, *Temple d'Empédocle*, pl. X, 2; Koldewey-Puchstein, *l.c.*, p. 149; Durm, *l.c.*, p. 135.

⁴ *Olympia: Ergebnisse*, Text II, p. 202, Fig. 26.

⁵ Koldewey-Puchstein, *l.c.*, p. 51; Durm, *l.c.*, p. 138.

beak alone.¹ But this instance was almost an accident,² and was unique among simas until we come down to the date of the Propylaea. It seems, therefore, that to the same spirit which led Mnesicles to find an unprecedented decoration, the egg-and-dart, for the sima of his main order, we owe the employment of a new profile for the sima of his secondary order.

One can hardly overestimate the importance of this invention of the *cyma recta*, the most familiar of all mouldings; it was an invention, the beginning of a continuous development. Soon after the cessation of work on the Propylaea, Ictinus borrowed this form for the pediments of the temple of Apollo near Phigalia, with some enrichment of the upper and lower mouldings.³ Then, toward the end of the century, it appeared in the second temple of Apollo at Delos,⁴ erected by the Athenians.⁵ These three, the Propylaea, and the temples at Bassae and Delos, all designed by Athenian artists, give the earliest examples of the developed *cyma recta* in Greek architecture. Its use in them, and its entire preliminary development, show that it was so far essentially a Doric moulding.

Previously in Ionic architecture the prevailing type was the vertical parapet with reliefs, appearing in terra-cotta in the temple at Neandria⁶ and in that of the Dictaeon Zeus in Crete,⁷ and in marble in the sixth-century temple at Ephesus,⁸ the Ionic temple at Locri Epizephyrii,⁹ and the three Ionian treasuries at

¹ *Olympia: Ergebnisse*, Text II, p. 194; Atlas II, pl. 118, 2 a.

² One or two other sporadic cases occur (but not on simas), as the cap of the pedestal of Antenor at Athens (*Ant. Denk.* I, p. 43, Fig. 5), likewise decorated with the broad Doric leaves and merely an outgrowth of such hawk's-beak forms as on the pedestal of Aeschines (*Ant. Denk.* I, pl. 29, 1) with the upper portion omitted.

³ Stackelberg, *Apollotempel von Bassä*, p. 45; Blouet, *Expédition de Morée*, II, pl. 19; Cockerell, *Temple at Bassae*, pls. 3, 6, 8.

⁴ Blouet, *Expédition de Morée*, III, pl. 7; photographs of German Institute at Athens, *Mykonos*, 16, 17 a, 17 b; Schede, *l.c.*, pl. IV, 26.

⁵ Karo, *Arch. Anz.* 1908, pp. 143-144.

⁶ Koldewey, *Neandria: 51^{stes} Winkelmannsprogramm*, Berlin, 1891, p. 48.

⁷ Bosanquet, *B.S.A.* XI, 1904-05, pp. 300-303, pl. XV; Savignoni, *Röm. Mitt.* XXI, 1906, pp. 64-82, pl. II.

⁸ Hogarth, *British Museum Excavations at Ephesus*, London, 1908, pp. 300-301.

⁹ Koldewey-Puchstein, *Die Griechischen Tempel*, p. 7.

Delphi.¹ It is near the end of the fifth century before we first find the *cyma recta* in an Ionic building,² the Erechtheum.³ From the Erechtheum this type seems to have crossed into Ionia through two channels early in the fourth century, first, when parts of the Erechtheum order were copied in the "Nereid Monument" at Xanthus, and again, when in the temple at Messa in Lesbos,⁴ the traditional Ionic vertical parapet was retained on the eaves, while the pediments had the new *cyma recta*.⁵ Thence, adopted to the exclusion of all other forms by the Ionian schools of the second half of the fourth century,⁶ it spread throughout Hellenistic Greece and the Roman world, and has since been more frequently employed than any other form of moulding.

Of the ornament of the sima of the southwest wing I could detect no trace; yet, coming just above a hawk's beak on which

¹ Published with doubtful identifications as: (1) "Cnidian," *Fouilles de Delphes*, IV, pls. 16-17; (2) "Siphnian," *B.C.H.* XXIV, 1900, p. 603, Fig. 5; (3) "Phocaeen," Perrot and Chipiez, *Histoire de l'Art*, VIII, p. 391, Fig. 182.

² Its use in the temple of Athena Nike, as restored by Ross, Schaubert, and Hansen, has long been known to be false (see Le Bas, *Voyage archéologique, Architecture*, I, pls. 6, 8; and Stevens, *A.J.A.* XII, 1908, pp. 398-405); and for its companion temple, that on the Ilissus, no sima was found, though Stuart and Revett (*Antiquities of Athens*, I, ch. II, pl. 6) restored a "conventional" *cyma recta*.

³ To be sure, nothing of the Erechtheum sima has been satisfactorily identified; the extant pieces which come from the main building belong to a Roman repair, the sima of the north porch is unknown, and that of the north door is again a repair, probably Roman. Penrose's attribution to the north porch of a sima in relief (*Principles*, 2d ed., p. 88) cannot be accepted without question. But the entire lintel of the north door is certainly a copy of the original, at least as high as the bottom of the sima; and the sima decoration agrees so well with the other types of anthemion in the north porch that we must consider this, too, a copy. Moreover, the Roman sima of the main building is probably a copy, in profile at least, of the original, for this same profile was copied, with other details of the Erechtheum, in the "Nereid Monument" at Xanthus.

⁴ Messa may have obtained the sima directly from the Erechtheum, since here, too, the frieze is of a dark material, a red stone (Koldewey, *Insel Lesbos*, p. 55), contrasted with white elsewhere; and the very existence of a frieze here points to Attic influence. (H. Thiersch, *Jh. Oest. Arch. I.* XI, 1908, p. 53.)

⁵ Koldewey, *Insel Lesbos*, pls. 21, 26, figs. 10-11.

⁶ It likewise appeared in a few later Doric examples, as the Hellenistic temple of Apollo at Delos (unpublished; phot. of German Inst. at Athens, *Delos* 29), Temple B at Selinus (Koldewey-Puchstein, p. 94, Fig. 67) after 240 B.C., and the portico of Philip V at Delos (Blouet, *Expédition de Morée*, III, pl. 6), ca. 200 B.C.

the traces of painted leaves are still visible, it can hardly have been devoid of color. Probably it was the well-known anthemion, which became characteristic of the *cyma recta*; for we find this ornament carved in relief on the similar simas of Bassae, the second and Hellenistic temples at Delos, and practically all Ionic examples.

The finding of one fragment of the angle geison *G* brings up the question of the restoration of the whole block. The gable sima must have returned along the eaves on the west side for some distance, but it could not have been far, since the

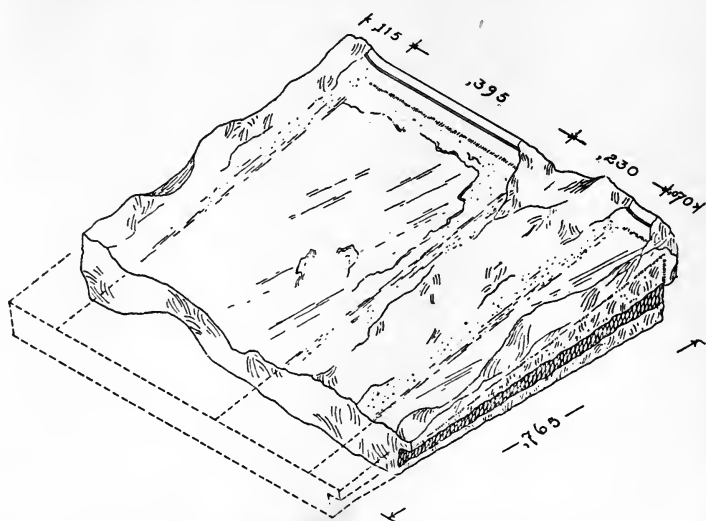


FIGURE 14.—EAVES TILE NEXT TO ANGLE STONE *G*.

numerous eaves tiles show no trace of a sima. One of these eaves tiles, however, is unlike the others (Fig. 14); an additional piece is added at the right of a regular tile, and furnished with a tongue which was intended to overlap a rebate in another stone, thus closing the joint. The length of bed, from front to back, is not the typical 0.720 m. of the eaves tiles all around the west wings, but the special 0.765 m. used only on the west cornice of the southwest wing. The extra strip of tile is 0.185 m. wide, of which about 0.030 m. is the projection of the tongue so that the extra amount of bed is only 0.155 m. Now when we space off the antefixes marking the regular tile

joints on the west cornice of the southwest wing, beginning with those determined by the triglyphs at the north, the last falls 0.385 m. inside the outer face of the south wall. But the north end of stone *G* was only 0.228 m. inside the wall line,

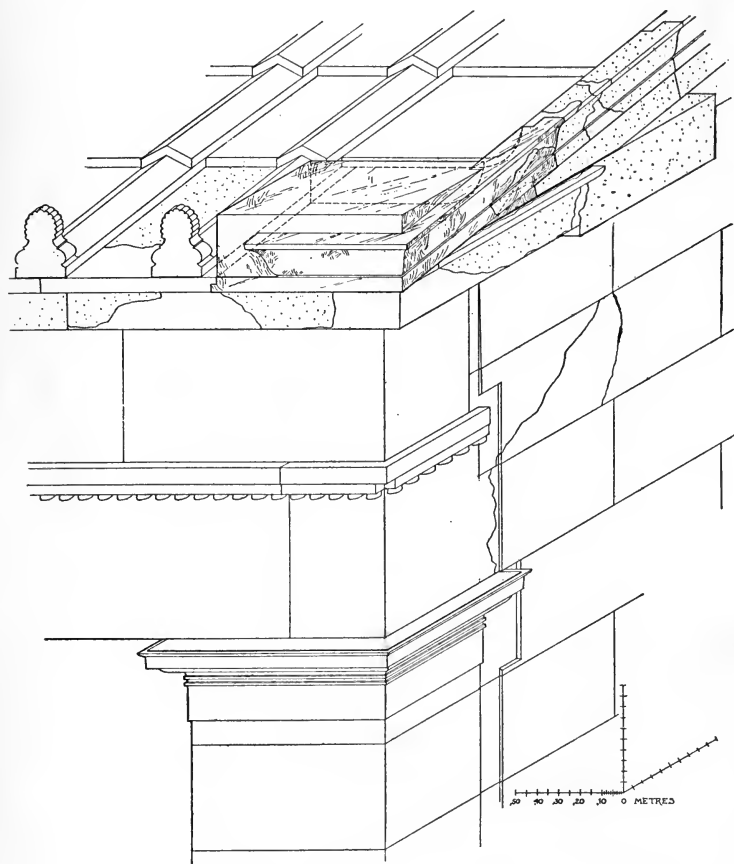


FIGURE 15. — ANGLE GEISON *G* AND ADJACENT STONES.

as shown by a cutting and the stopping of the anathyrosis on the adjacent geison *F*,¹ and a corresponding weather line on the horizontal geison *P* which formed the bed of stone *G*. The actual joint was then 0.157 m. south of the pretended joint marked by the last antefix, and this exactly fits our

¹ Drawn by Bohn, *Die Propyläen*, pl. XVIII, 14 β.

special tile.¹ In cases of the omission of the eaves sima, in marble construction at least, the return of the gable sima ends behind a false lion's-head spout,² which is carved on the angle acroterion base.³ The acroterion base continues onward in the Parthenon, to the centre of the first cover tile, so that the first antefix is half cut in relief on the acroterion base;⁴ at Aegina the acroterion base stops short of the cover tile, and the first antefix stands free.⁵ In the Propylaea the evidence of the unique eaves tile points to the Aeginetan type; but at Aegina the small strip of flat tile lying between the acroterion base and the antefix was cut on the acroterion block, while in the Propylaea it was cut on the last eaves tile, with a tongue fitting a rebate on the acroterion base (Fig. 5). The height of the acroterion base, when attached to an antefix as in the Parthenon, equals that of the antefix; at Aegina and Bassae it was free, and was slightly higher. In the case of the Propylaea, the fragment of stone *G* has about 31 cm. of tile surface which must have come behind the acroterion base, limiting the latter to about 50 cm. from front to back, and this, with the given slope of the gable, allows a height of about 28 cm., whereas the antefixes are 0.312 m. high.

WILLIAM BELL DINSMOOR.

ATHENS, 1909.

¹ A dowel hole for a tile on the north edge of horizontal geison *P* exactly fits one in the north edge of our tile, so that the entire bed of the tile (except about 3 cm.) was on *P*; but the north end of *P* is broken off from the main portion, and the two fractures do not fit, so that the amount missing must be determined by the spacing of the tiles.

² No lions' heads were found at Bassae, but Cockerell (*Temple at Bassae*, p. 50) and Blouet (*Expédition de Morée*, II, p. 8) agree in restoring them.

³ In the case of the Propylaea, we should probably omit the lion's head, that it might not be unique in the entire design; the sima could then return back into the acroterion base, after a proper interval, just as the crowning moulding of the geison returns into the plain block on the south wall of the wing.

⁴ Laborde, *Le Parthénon*, Paris, 1848, pl. 45.

⁵ Furtwängler, *Aegina*, pls. 35, 47.

NOTES ON GREEK VASE PAINTINGS

I. MEANDER OR LABYRINTH

IN the circular field in the interior of a red-figured cylix in the British Museum (*Catalogue*, III, p. 111, E 84), published in *J. H. S.* 1881, pl. X (Fig. 1), Theseus is represented, with sword in hand, dragging the Minotaur from a building which is vaguely defined by a Doric column and a triglyph frieze. C. Smith (*J. H. S.* 1881, p. 60) thought the vertical pattern of meander (labyrinth?) and chequer squares to the right of the column might be the decoration of a door-jamb. But it is too wide for this. An anta is clearly intended; but an anta with such a vertical



FIGURE 1. — INNER PART OF CYLIX IN THE
BRITISH MUSEUM.

pattern has no warrant in architecture. The suggestion that the meander squares "have reference to the labyrinth in which the palace of the Minotaur stood" seems to have met with general acceptance, because the meander on some coins of Cnossus clearly refers to the labyrinth. The meanders on the cylix are, however, by no means so distinctly labyrinthine as are those of the wall-painting from Cnossus (*B. S. A.* VIII, p. 104) and the Pompeian graffito (Daremberg et Saglio, III, p. 883), but resemble the purely ornamental meander used by

Duris and others (*e.g.* Hartwig, *Meisterschalen*, pl. XXIII). The meander surrounding the field of this same cylix is more intricate and less interrupted by chequer squares. On a cylix by Aeson (*Ant. Denk.* II, pl. I) and on a third cylix, now at Harrow-on-the-Hill (Wolters, *Sitzb. Mün. Akad.* 1907, pl. 1), on both of which the same scene is represented with some modifications, the meander is still simpler. There is nothing distinctively labyrinthine about the meander on this vertical stripe, and it cannot be dissociated from the meander which surrounds the circular field. This Wolters has unconsciously done (*l.c.* p. 121) by omitting the border from his illustration. The interpretation of the upright band as an indication of the labyrinth has been supplemented by Wolters (*Sitzb. Mün. Akad.* 1907, pp. 113-132), who publishes two vase paintings, one on an extremely poor black-figured lecythus from Vari, now in the National Museum at Athens (Collignon-Couve, p. 283, No. 878, Wolters, pl. 2), the other on fragments of a black-figured scyphus found on the Athenian acropolis (Wolters, pl. 3). In the first of these Theseus is dragging the Minotaur from behind a high upright column (or stele, Δελτ. Ἀρχ. 1891, p. 15) decorated with horizontal bands of zigzags, vertical lines, and circles; in the other are Theseus and Athena, and behind Theseus a high rectangular object covered with horizontal bands of meanders, tangent spirals, and cross-hatchings. Wolters thinks the upright objects in these two vase paintings represent the labyrinth, the nature of which is, as it were, suggested by the meanders. But the column or stele on the lecythus has a base and a projecting top and looks more like an altar (but for its height) than a building. The tradition of the black-figured vases left the scene of the struggle to inference (Robert, *Bild und Lied*, p. 20). The scene represented on the fragments of the scyphus is not clear, and therefore the interpretation of the upright object as the labyrinth is uncertain. The relation between these vases and the red-figured cylices is not sufficiently established.

The three cylices are obviously related. Of the three the one in the British Museum is the best and certainly the oldest in style. Here the drawing is careful and the figure of Theseus stands out well against the background. This is not true of

Aeson's cylix, in which Athena appears and somewhat crowds the scene. But the position of the Minotaur on the cylix in the British Museum is peculiar. His arm drags without resistance, indicating that he has given up the fight, but his body is still so vigorous that his left shoulder is raised higher than the horn by which Theseus has taken hold. The explanation of this inconsistency is to be found in the difficulty presented by the circular field. Had the painter let the body of the Minotaur drag naturally there would not be sufficient room for the hero on the ground line. The great theme is Theseus, and Theseus is given space at the expense of the Minotaur.

The impossible position of the Minotaur was observed by the copyists and both tried to correct it in different ways only to get into difficulties. The painter of the cylix at Harrow-on-the-Hill lowered the Minotaur so that he rests on his elbow, but moved Theseus so far toward the left that knee and foot are cut off by the border and the effective position of the arm is lost. On the cylix in the British Museum the right arm is drawn back so that it fills satisfactorily the space to the left of the body, while the lines of the arm are in pleasing accord with the curve of the border and there is a good possibility for a thrust with the sword. This is lost in the cylix at Harrow.

Aeson, whose cylix is a later version of the theme, has introduced a more elaborate temple order and added the figure of Athena "um die Darstellung personenreicher zu machen" (Robert, *Bild und Lied*, p. 54). He has placed the Minotaur on what appear to be three steps. These steps are very remarkable. Wolters (*l.c.* p. 120) says, "Die Stufen, welche hinter den Säulen erscheinen, sollen wir uns offenbar als Krepidoma des ganzen Baus denken, der sich also nach Art des gewöhnlichen griechischen Tempels auf einem Unterbau von drei Stufen erhebt." But it seems strange that a painter who took pains to indicate correctly the Ionic fluting and who put a neat acroterion on the pediment should have placed the temple steps above and behind the stylobate, where they do not belong. Some less improbable explanation should be sought, and the search may begin with an examination of the portico, with a view to discovering whether Aeson, when he painted the vase, had any particular portico in mind. The reason why he sub-

stituted the Ionic order for the Doric of the other two cylices was that he had fallen under the spell of the recently erected Erechtheum. Vallois (*R. Arch.* 1908, XI, p. 382) notes a resemblance between the capital of the column of the Erechtheum and that painted on the cylix. The broad band encircling the neck of the column is especially worth noticing. It is an unusual feature and was limited, at Athens, to the Erechtheum.¹ That Athenian vase painters took temples for models is made probable by those vases which show pediments with snakes at the corners and suggest, as Vallois (*l.c.* p. 387) notes, the pediment of the old Hecatompedon. Aeson could not have had a better model than the north porch of the Erechtheum. He chose it just as the painter of the cylix in the British Museum chose some Doric portico as the background for his scene. The portico chosen has no connection whatever with the Minotaur and, in relation to the scene, is as vague as a solitary column is on some of the early red-figured vases on which Theseus and the Minotaur appear (Reinach, *Répertoire des vases peints*, I, p. 509).

If one concedes the possibility that Aeson chose the north porch of the Erechtheum as his model, there is nothing difficult in the corollary that he reproduced in his painting the *βωμὸς τοῦ θυηχοῦ*, which is known, on the evidence of the Chandler inscription, to have stood in that porch (Jahn-Michaelis, *Arch Athenarum*, p. 101, col. I, 77-79). The altar was rectangular (Petersen, *Die Burgtempel der Athenaia*, p. 96). Perhaps the cylix shows that the altar stood on the north rather than on the west of the opening in the floor (Petersen, *l.c.* p. 97). The uppermost block of the three seen on the cylix is differently treated from those below it.

Whatever the interpretation of the blocks, they saved the painter from the necessity of placing the Minotaur on the ground line or in the impossible position seen on the cylix in the British Museum. But the position of the arms is inconsistent, for they are thrown forward instead of dragging, though the monster is dead, or nearly so. There is no resistance in hand or arm.

¹ It is interesting to remark that, as no acroterion bases were found for the Erechtheum, a small acroterion of the type seen on this cylix has been conjecturally restored. Vase painters usually omit such a detail.

The conclusion reached by a comparative study of the cylices is that the one in the British Museum is the original from which the other two were copied, or else that all three go back to a common original, of which the one in the British Museum would be the most faithful copy. This cylix then must be studied in preference to the other two, in an effort to determine the purpose of the vertical band of meanders and chequers, which Wolters has taken to be the last stage in the development of the labyrinth ground plan. The solution is a simple one, which, of course, holds good for the imitative designs on the other two cylices.

The body of the Minotaur is dragged from behind a wall which the painter represented by a narrow line of red, behind which appears the black of the background. It is important to notice that this line is placed as far to the right as it can be and still reach from architrave to stylobate. The portico is thus represented in side view. If the painter had filled in the segment to the right of the line that marks the wall with solid black or solid red, he would have produced a displeasing effect and would have called attention to the difficulty imposed upon him by the circular field. He therefore effected a compromise by filling the space with a meander-chequer pattern in which both colors appear. The narrow red line representing the wall is the real boundary of the scene to the right. The pattern merely fills the space and, having nothing to do with the scene, approximates in character the encircling border, that it may not by sharp contrast make itself and its real purpose conspicuously obtrusive. A similar principle is at work in the case of a cylix by Duris (Hartwig, *Meisterschalen*, pl. XXII). Rather than leave the right side of the circular field vacant, Duris drew there two large palmettes which he borrowed from the border that surrounds the scene. These palmettes he enlarged and modified. Although they are within the circular field and have nothing to do with the scene, their resemblance to the surrounding border of palmettes takes them out of the class of ordinary stop-gaps. This is true also of the pattern of meanders and chequers on the cylix under discussion.¹

¹ It will be noticed at once that Hartwig regards the palmette on the cylix by Duris as being below the figures (*l.c.* pp. 210, 659). But perhaps Duris did

An exact parallel to the vertical stripe on the three cylices is not at hand. De Witte (*Élite des monuments céramographiques*, I, pl. XVI, p. 33) reproduces from Tischbein a scene in the lower left-hand corner of which is a rectangle ornamented with three horizontal bands, the outer two consisting of chequers, the inner one of a meander with a square of small chequers at the middle. De Witte has no explanation for the pattern, which may simply fill space.

Wolters (*l.c.* pp. 121, 132) emphasizes the unusual size of the pattern on the cylix in the British Museum, but the size is, of course, determined by the space to be filled. So space determines the size of the palmettes on the vase by Duris just cited. On the cylix in the British Museum the pattern is much wider than the encircling border, while on the cylix signed by Aeson there is very little difference. Aeson gives the portico in front view, and has therefore no wall to indicate. He keeps the vertical pattern but makes it narrower. For so large a pattern as that on the cylix in the British Museum he had no need.

All three cylices betray the difficulty of filling the circular field when the ground line is introduced. Vase painters did not feel any necessity of filling the exergue. Occasionally it was filled, though rarely with such unity of theme as marks the Arcesilas cylix. While the careful painter of the cylix in the British Museum consented to leave the exergue empty, he objected to an unfilled segment at the right of the field. There is no warrant for finding in the meander and chequer pattern either a suggestion or a survival of a ground plan of the labyrinth.

II. A CERAMIC NOTE ON BACCHYLIDES, XVI, 97

The scene on the exterior of the fragment of a pinax from Praesus (*B.S.A.* X, pl. III = *Ath. Mitt.* 1906, p. 391; Fig. 2) is

not have in mind the poetical situation fancied by Hartwig, p. 659: "Dort (pl. XXII) legt allerding's die Flügelfigur herabschwebend den Knaben auf ein Blütenlager nieder." The palmette is a too conventionalized ornament to serve as a bed of blossoms. Another cylix (Hartwig, pl. LXXII) which has the same scene shows that the group is conceived as just rising from the ground in a vertical position. Whether the figures in pl. XXII are given a vertical or a horizontal position, the line of the handles is not at right angles to the vertical axis of the scene — the normal relation on cylices.

interpreted by J. H. Hopkinson (*B. S. A. X.* p. 148) as a male figure wrestling with a sea monster which "apparently lifts its body in the centre of the plate." The man's arms and his bent left leg, which does not touch the monster's back, do not, however, give the impression of a struggle, and the position of his beard indicates that the man was looking upward, not toward the monster. The action of the right leg (the lower part of which is wanting) is not clear. Of the monster enough remains to show that it did not terminate in a human head and shoulders. It cannot then have been a Triton.

The most probable interpretation is that the painting represents Theseus borne up from the depths of the sea by a large fish, a scene immediately subsequent to that depicted by Euphronius, whose cylix (Furtwängler-Richhold, *Griechische Vasenmalerei*, pl. 5), is the earliest known document for any part of the story contained

in Bacchylides, XVI (Jebb, *Bacchylides*, p. 225). The man is bearded and long-haired and wears a belt, like the Theseus on black-figured vases (Stephani, *Der Kampf zwischen Theseus und Minotaurus*, pls. I-III). His sword is made conspicuous by the contrast in color of sheath and handle, and he is shod with sandals. Sword and sandals were found by Theseus when he lifted the rock. The cord hanging from the mass of hair is perhaps the thread of Ariadne, which appears on an Archaic gold plaque from Corinth published by Furtwängler (*Arch. Ztg.* 1884, p. 107). It can hardly be a sheath cord, since it hangs free and is not attached to the sheath. The line from the armpit to the sheath is probably a surface line of the body, to be classed with the line on the thigh. If the hanging cord is really the thread of Ariadne, the scene suffers from contamination (Robert, *Bild und Lied*, p. 52) and contains a reference to a later part of the story.



FIGURE 2.—FRAGMENT FROM
PRAESUS.

The scene is laid in the depths of the sea, and the white object just above the straight line which marks the exergue is the foot of a female figure swimming (cf. the amphora by Andocides, *A.J.A.* 1896, p. 3, and the swimming figure on the François vase, Furtwängler-Reichhold, pl. XIII). The shape is that of a human foot and leg and the color is that regularly employed to represent female flesh. The swimmer may be one of the Nereids (Bacchyl. XVI, 101, Jebb, τόθι κλυτὰς ἰδὼν ἔδεισ' ὀλβίῳ Νηρέος κόρας).

According to Bacchylides (XVI, 97, Jebb, φέρον δὲ δελφίνες ἀλιναιέται μέγαν θοῶς Θησέα πατρὸς ἱππίου δόμον) dolphins, not a Triton, bore Theseus to the palace of Poseidon. Perhaps this is not an innovation on the part of the poet, as Robert (*Hermes*, XXXIII, p. 142) and Furtwängler (Furtwängler-Reichhold, *Griechische Vasenmalerei*, text, I, p. 29) have thought, for the fragment from Praesus surely antedates the poem of Bacchylides by more than a century.¹ The fish here represented is hardly a dolphin, but if the tradition existed that a fish brought Theseus to the surface, the poet might naturally specify the kind of fish.

III. NOTE ON A CYLIX IN PHILADELPHIA

The design on the interior of the cylix recently published by Miss Swindler (*A.J.A.* 1909, pp. 142 ff.) is a good example of the difficulty presented to vase painters by the circular field (cf. Klein, *Euphronios*, p. 35; Poulsen, *Ath. Mitt.* 1906, p. 380). In the scene in question (*l.c.* p. 145) the legs of the youth are conspicuously unequal in length. The right leg, which is so bent that the foot rests on the basis of the altar, is shorter than the other, which reaches down to the curved base line of the scene. The prolongation of the latter, which might have been avoided if the painter had drawn a horizontal ground line, helps to produce the impression that the painter shows a liking for elongated figures (*l.c.* p. 146).

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¹ Cf. Poulsen, *Ath. Mitt.* 1906, p. 382.

THE CORRELATION OF MAYA AND CHRISTIAN CHRONOLOGY

ONE of the most important problems in American Archaeology is the correlation of the Maya system of counting time with our own. Long before the first appearance of the white man in the Western World, the Maya race of Central America and Southern Mexico had developed an accurate system of reckoning time and recording events. So accurate indeed is this aboriginal chronology that were it possible to translate a single Maya date into the corresponding notation of our own calendar, the age of all the great cities of the Maya culture would be known, probably more exactly than the age of Nineveh, Babylon, or even Rome. Already the broader lines of Maya History have been traced. The general northward trend of migration within the area has been established. The rise and fall of the larger cities relative to each other have been worked out. Even the periods of time during which they were occupied, expressed in Maya notation, have been reduced to years, as we understand that term. There remains, however, the much more difficult task of bringing Maya Chronology into accordance with our own, and of changing the dates of the one system into the corresponding dates of the other. To accomplish this, some kind of an American Rosetta Stone is required, which will set forth the Maya equivalent of a known date in our own calendar. The nearest approach to such a chronological key is that class of manuscripts known as The Books of Chilan Balam.

The Books of Chilan Balam were copied or compiled in Yucatan by natives during the sixteenth, seventeenth, and eighteenth centuries, from much older manuscripts now lost

or destroyed. They are written in the Maya language in Latin characters, and treat, in part at least, of the history of the country before the Spanish Conquest. Each town seems to have had its own book of Chilán Balam, distinguished from others by the addition of the name of the place where it was written, as: The Book of Chilán Balam of Mani, The Book of Chilán Balam of Tizimin, and so on. Although much of the material presented in these manuscripts is apparently contradictory and obscure, their importance as original historical sources cannot be overestimated, since they constitute the only native accounts of the early history of the Maya race, which have survived the vandalism of the Spanish Conquerors. Of the sixteen Books of Chilán Balam now extant, only three, those of the towns of Mani, Tizimin, and Chumayel, contain historical matter. These have been translated into English, and published by Dr. D. G. Brinton under the title of "The Maya Chronicles." This translation with a few corrections has been freely consulted in the following discussion.

In all, there are five of these chronicles: one from the Mani manuscript, one from the Tizimin manuscript, and three from the Chumayel manuscript. Each of these chronicles contains a more or less consecutive arrangement of twenty-year periods called, in Maya, *katuns*, after each one of which is set down the event or events that occurred during its course. These accounts are, in reality, little more than chronological synopses of the history of the country. They are called in The Books of Chilán Balam variously: "The Record of the *Katuns*," "The Record of the Count of the *Katuns*," "The Arrangement of the *Katuns*" and "The Order of the *Katuns*." These names suggest, what the manuscripts are in fact found to contain, sequences of *katuns* or twenty-year periods during which happened the events recorded.

When it became necessary to fix an event more closely than as occurring within a period of twenty years, the division of time next smaller than the *katun* was also used. This was called by the Mayas the *tun*, and contained 360 days, roughly corresponding to our own year. The statement that an event occurred in any given *tun* of a *katun* fixed that event to a definite year within a period of twenty years. Just as we might

describe the Discovery of America as occurring in the second year of the tenth decade of the fifteenth century.

Katuns were named after the days with which they began, or, as some contend, after the days with which they ended. This difference of opinion, however, is merely a quibble as to the starting-point, and does not affect the sequence of the katuns, which is the same in either case. In this discussion, katuns are regarded as having been named after the days with which they began. The Maya katun always began with a day called Ahau, and the different katuns were distinguished from each other by a numerical coefficient ranging from 1 to 13 prefixed to the name of this day. The beginning days of katuns, however, did not follow each other in the order that would suggest itself as natural to us, namely: 1 Ahau, 2 Ahau, 3 Ahau, and so on, but in the following order: 13 Ahau, 11 Ahau, 9 Ahau, 7 Ahau, 5 Ahau, 3 Ahau, 1 Ahau, 12 Ahau, 10 Ahau, 8 Ahau, 6 Ahau, 4 Ahau, 2 Ahau, 13 Ahau, and so on. This order, irregular as it may appear, arises quite naturally from the necessities of Maya Chronology. It follows, therefore, that any given katun could not recur until after an interval of 13 times 1 katun or its equivalent 20 tuns, or after a lapse of approximately 260 of our own years. Consequently any event stated as occurring in any given tun of any given katun fixed that event to a definite year in a period of 260 years, which was probably close enough for general purposes. No higher unit of time than the katun appears in *The Books of Chilán Balam*, though the Mayas of Yucatan may well have known a higher unit, since the Mayas of the Usamacinta region, an older habitat of the same culture, were familiar with a higher period composed of 20 katuns or about 400 years.

The events recorded in the five different chronicles agree fairly well with each other, as Brinton demonstrated in his "Synopsis of Maya Chronology." In some accounts, to be sure, katuns are omitted, and in others they are inserted, and in still others the same katun is repeated twice or even thrice. But when all five are studied comparatively, each acts as a check upon the other, and the context is usually such that there can be but little doubt that the Brinton sequence is, in the main, the actual arrangement of the katuns in their proper order.

According to his arrangement, 70 katuns elapsed from the earliest event recorded in the *Chronicles* to the Spanish Conquest, a period of nearly 1400 years.

Just after Katun 2 Ahau, in which the first appearance of the Spanish off the coast of Yucatan is mentioned, there is recorded a date in both Maya and Christian notation, apparently with extreme accuracy. This date is the death of a certain native chief called Napot Xiu, which is said to have occurred in a Katun 13 Ahau, while yet 6 tuns were lacking before the end of that katun on the day 9 Imix, which was the 18th day of the month Zip. The chronicler further states that this event took place in the Year of Our Lord 1536.

On the basis of this statement, Mr. Charles P. Bowditch assigned the date 34 A.D. to Stela 9 at Copan, although in so doing he was obliged first to make two changes in the original text. Another correlation of Maya and Christian Chronology is that made by Professor Eduard Seler on the strength of a passage in *The Book of Chilán Balam of Mani*. This passage states that the beginning day of Katun 5 Ahau, which was in the Year of Our Lord 1593, fell on the 15th day of the month Tzec, although a correction in the text is again necessary, before this statement can be utilized. Professor Seler's correlation gives 1255 B.C. as the date of Stela 9 at Copan, nearly 1300 years earlier than Mr. Bowditch's date for the same monument.

To accept either Mr. Bowditch's correlation or Professor Seler's, two important postulates are necessary:

(1) That the day Ahau is shifted forward from the 2d, 7th, 12th, or 17th positions in the month as found in *The Books of Chilán Balam* to the 3d, 8th, 13th, or 18th positions so as to agree with the inscriptions of the Usamacinta area. This shift includes a corresponding change of one place in the position in the month of all the other days; and

(2) That this change in no way disturbed the continuity of the sequence of the katuns.

The first of these postulates, it must be borne in mind, necessitates actual changes in the original texts upon which the correlations are based, and the second cannot be verified until we know the exact nature of the change which was made.

For some unknown reason the Mayas of Yucatan had gained

a day over the older cities of their culture. In the Usamacinta area, the day Ahau could be only the 3d, 8th, 13th, or 18th day of a month, and the day Imix, that on which the native chief Napot Xiu is said to have died, could be only the 4th, 9th, 14th, or 19th day of a month. Now, in *The Books of Chilán Balam*, where this event is recorded, the death of Napot Xiu is clearly stated to have been on a day Imix which was the 18th day of the month; and in the passage from *The Book of Chilán Balam of Mani* used by Professor Seler, the day Ahau is said to be the 15th day of a month, which Professor Seler would correct to the 17th. Judging from *The Books of Chilán Balam*, then, it would seem that the Mayas of Yucatan assigned a slightly different position to the days in the month than did the Mayas of the Usamacinta cities, Copan, Quirigua, and Palenque, for example. Or, in other words, that in the course of time a change had come about, so that the day Ahau was no longer the 3d, 8th, 13th, or 18th in the month, but the 2d, 7th, 12th, or 17th, and similarly that the day Imix had shifted from the 4th, 9th, 14th, or 19th position in the month to the 3d, 8th, 13th, or 18th. Indeed, some kind of a change or alteration in the calendar is actually recorded in two of the chronicles in these words, "Then Pop was set or counted in order," Pop being the first month of the Maya year.

There is another serious objection to these correlations, however, which must be explained before either of them can be accepted as definitive. If we substitute the Initial Series assigned by Mr. Bowditch to the year 1536, in the sequence of the katuns as given by Brinton, and count backward to the Initial Series of the Chichen Itza lintel, we find that this latter date occurred, according to Mr. Bowditch, 70 years before even the earliest mention of Chichen Itza in the *Chronicles*, and 170 years before the founding of the city.

Similarly, Professor Seler's Initial Series for the year 1593 gives the Initial Series of the Chichen Itza lintel a position in the sequence of the katuns over 1300 years before the first mention of that city in the *Chronicles*.

To explain away this very evident anachronism one of two assumptions is necessary: Either the Chichen Itza Initial Series is not a contemporaneous date, or the sequence of the katuns, as

given by Brinton, falls short of the true sequence by at least 13 katuns in the case of Mr. Bowditch's correlation, and 77 katuns in the case of Professor Seler's. The first of these assumptions is contrary to the generally accepted theory of Maya dates; and the second is contrary to the best reading of the sequence of the katuns.

There is another, though less vital, objection, since it involves no textual changes, to each of these correlations. In the passage used by Mr. Bowditch, the statement that when the chief Naput Xiu died 6 tuns were lacking before the end of the katun, is not literally true, as Mr. Bowditch himself has shown, since in reality $6\frac{5}{8}$ tuns were lacking, or nearly 7. He explains this, however, by saying the scribe who recorded the event took no cognizance of odd days, but merely counted the whole tuns needed to finish the katuns. On the other hand, the date 1255 B.C. for Stela 9 at Copan, based upon Professor Seler's correlation, is altogether too early. It makes the great cities of the Usamacinta area over 3000 years old, an antiquity that may well be doubted, if for no other reason than the remarkable preservation of delicate sculptures under the action of such a destructive vegetation as now covers the cities of this area.

Before submitting my own correlation of Maya and Christian Chronology, it is first necessary to speak of another change, or, better, abbreviation, in the Maya method of recording events, which was introduced after the period of the Usamacinta inscriptions, but before the period of The Books of Chilan Balam. The practice of naming the katuns in The Books of Chilan Balam after the days with which they began has already been explained. In the older area, however, a different method of recording dates was used; namely, the number of cycles, katuns, tuns, uinals, and kins, which had elapsed from a common normal date 4 Ahau, 8 Cumhu to the event recorded, were stated. Throughout the Usamacinta area the date 4 Ahau, 8 Cumhu was universally regarded as the starting-point of Maya Chronology corresponding to our Birth of Christ. The statement that a certain number of cycles, katuns, tuns, uinals, and kins had elapsed from this normal date to the date recorded, fixed such a date so that it could not recur, filling all the given

conditions, for many thousands of years. For example, the date of Stela 9 at Copan in Maya notation of the Usamacinta area is, 9-6-10-0-0 8 Ahau, 13 Pax, which means that 9 cycles, 6 katuns, 10 tuns, 0 uinals, and 0 kins had elapsed from the normal date 4 Ahau, 8 Cumhu to the date recorded, 8 Ahau, 13 Pax. This same date in The Books of Chilán Balam would have been recorded thus: The beginning of Tun 10 of Katun 8 Ahau, no mention being made of any particular cycle. However, as both Mr. Bowditch and Professor Seler have pointed out, there is no actual difference between these two methods, since the katuns in both instances follow each other in the same order, which is the all-important fact. This change from the Initial Series system of dating, practised in the Usamacinta area to the count by katuns found in The Books of Chilán Balam, was probably due to the fact that the latter is very much shorter and less complicated to record than the former, and fully as accurate as far as it goes; though the recurrence of a date which will satisfy given conditions is not so restricted as in the Initial Series.

For a long time it was thought that the Initial Series method of counting time had never reached the cities of Yucatan, but had collapsed in the Usamacinta area before the great northward migrations of the Maya race; and that the Mayas of Yucatan were familiar only with the abbreviated method used in The Books of Chilán Balam.

A few years ago, however, Mr. E. H. Thompson discovered at Chichén Itzá, Yucatan, an inscribed lintel upon which an Initial Series was recorded. This find has never been duplicated, and the Chichén Itzá Initial Series has remained, up to the present moment, the only one ever found outside of the Usamacinta area.

It would be difficult to overestimate the archaeological importance of this discovery. It is no exaggeration to say that the Chichén Itzá lintel has given us the most important inscription yet recovered from the whole Maya area. This importance is due to the following fact: Chichén Itzá, by the discovery of this inscription, becomes the only city mentioned in The Books of Chilán Balam to which it has been possible to assign an Initial Series date. Or, in other words, Chichén Itzá is the only city in Yucatan which it has been possible to date

relatively with the older cities of the Usamacinta area. Chichen Itza, therefore, is at the present time the only connecting link between the Initial Series chronology of the Usamacinta and the later chronology of Yucatan as given by The Books of Chilan Balam.

We are now in possession of all the facts necessary to an understanding of the correlation I would propose, which depends on the following postulates:

(1) That the sequence of the katuns as determined by Brinton in his "Synopsis of Maya Chronology" is the correct one;

(2) That the year 1536 in Christian Chronology occurred sometime during Katun 13 Ahau of Maya Chronology, a postulate which is also necessary in Mr. Bowditch's correlation, as is a similar one in Professor Seler's; and

(3) That the Chichen Itza Initial Series records a contemporaneous date, a fact now generally admitted by students of Maya Chronology.

These postulates, unlike those upon which the correlations of both Mr. Bowditch and Professor Seler are based, do not ask us to take anything for granted about the positions of the days in the month, which, as we have seen, underwent some kind of a change. For this reason, the correlation which I propose lacks one great possibility for inaccuracy present in the other two. Moreover, the change recorded in the Chronicles states clearly that it has to do primarily with the months — witness the wording, "Pop was set or counted in order." That this change did not disturb the sequence of the beginning days of the katuns upon which my correlation depends would seem to be indicated by the fact that the beginning days of the katuns follow each other in the same order in the Chronicles both before and after this change without an apparent break.

The correlation I propose consists of two parts:

(1) Fixing the position of the Chichen Itza Initial Series in the sequence of the katuns as derived by Brinton from The Books of Chilan Balam;

(2) Then finding the date in Christian Chronology which corresponds to the Chichen Itza Initial Series, by using the statement in the sequence of the katuns that the year 1536 occurred in a certain Katun 13 Ahau.

After this one point of contact between the two systems has been established, it is a simple matter of substitution to find the position of any Initial Series in Christian Chronology.

The Initial Series of the Chichen Itza lintel, expressed in Maya notation, is 10-2-9-1-9 9 Muluc 7 Zac. This means that the date 9 Muluc 7 Zac occurred on Kin 9 of Uinal 1 of Tun 9 of Katun 2 of Cycle 10. Our first problem then is to find out with what day Katun 2 of Cycle 10 began, because, in the first place, this katun included the Chichen Itza Initial Series within its span, and in the second place, events in The Books of Chilán Balam are rarely recorded more exactly than as occurring within a given katun. It is found that Katun 2 of Cycle 10 began with the date 3 Ahau 3 Ceh expressed as an Initial Series by 10-2-0-0-0 3 Ahau 3 Ceh. This katun would be recorded in The Books of Chilán Balam simply as Katun 3 Ahau; that is, named after the day with which it began, and omitting the month and the period of time which had elapsed from the normal date 4 Ahau 8 Cumhu, as previously explained.

Our next problem is to find in the Brinton sequence of the katuns a Katun 3 Ahau in which there is a stated occupation of Chichen Itza. For some Katun 3 Ahau contained within its span the Chichen Itza Initial Series which we have regarded as a contemporaneous date; and consequently we ought to find in the Chronicles some Katun 3 Ahau in which Chichen Itza is said to have been occupied.

A close study of the sequence of the katuns shows that there are two katuns beginning with the day 3 Ahau in which an occupation of Chichen Itza is clearly stated, and a third during which the site may have been occupied, though the Chronicles do not record the fact. It remains for us to determine which one of these three katuns corresponds to the Initial Series 10-2-0-0-0 3 Ahau 3 Ceh.

The first of these three Katuns 3 Ahau, which we may designate as A, occurred, according to The Books of Chilán Balam, toward the close of the first period at Chichen Itza shortly before the removal to Champoton. The second, which we may call B, fell about 500 years later near the middle of the period of The Triple Alliance between the cities of Chichen Itza, Uxmal, and Mayapan. The third, C, during which Chichen

Itza probably was occupied, though there is no direct statement to that effect in the Chronicles, occurred about 260 years later, some time before the final destruction of Mayapan. It was during this final period, at Chichen Itza probably, that the strong Nahuatl influence so noticeable in the sculptures of this site was felt. This influence may have been due to the fact that Chichen Itza was conquered about this period by the ruler of Mayapan with the help of Nahuatl mercenaries, to whom the city may have been given as a reward for their share in the conquest.

That A was the only possible one of these three Katuns 3 Ahau which could correspond to the Initial Series 10-2-0-0-0 3 Ahau 3 Ceh is proved by several different lines of evidence :

(1) If we assign the Initial Series 10-2-0-0-0 3 Ahau 3 Ceh to either B or C, we reach, in the case of B, an Initial Series 8-8-0-0-0 6 Ahau 13 Mac for the discovery of Chichen Itza as given by The Books of Chilan Balam, and in the case of C, an Initial Series 7-15-0-0-0 6 Ahau 13 Tzec, for this event. To any one at all familiar with Maya Chronology, such Initial Series as these are impossible as designating contemporaneous events. The earliest contemporaneous date at Copan, the oldest site of the Maya culture now known, is 370 years later than the Initial Series given by B, and 630 years later than the Initial Series given by C.

(2) The use of 10-2-0-0-0 3 Ahau 3 Ceh, as the Initial Series value of A, gives 9-0-0-0-0 8 Ahau 13 Ceh as the Initial Series of the earliest event recorded in The Books of Chilan Balam. This Initial Series, which denotes the beginning day of Cycle 9, must have been of peculiar significance to the Mayas, since every one of their dates which it is possible to regard as contemporaneous, with the exception of a few at the beginning of Cycle 10, all fall within Cycle 9. This cycle saw the rise and fall of all the great cities of the Usamacinta area. A thousand years later, when The Books of Chilan Balam were written, the beginning of the cycle in which occurred their Golden Age must have had a peculiar importance to the Mayas of Yucatan, and must have seemed to them an extremely appropriate date from which to start their chronicles. That the land of Nonoual, from which they claim to have come, may have been

mythological, as Dr. Brinton has shown, strengthens our identification of 10-2-0-0-0 3 Ahau 3 Ceh as the Initial Series corresponding to A. In the departure from Nonoual in 9-0-0-0-0 8 Ahau 13 Ceh, which this Initial Series value for A gives, we have not the record of an actual historical event, but of a mythological event. The land of Nonoual may well be a mythological place agreed upon, perhaps by the priesthood, at a much later time as the original home of the Maya race, and the beginning of Cycle 9 must have seemed to them a very appropriate date for that migration to have started. The use of either B or C as corresponding to 10-2-0-0-0 3 Ahau 3 Ceh, on the other hand, again gives impossible Initial Series for the opening event in The Books of Chilan Balam from the Maya point of view.

It is very significant that the use of A gives such an important round number in Maya Chronology as the beginning of Cycle 9 as the date of the earliest event recorded in the Chronicles, *i. e.* the departure from the former home of the race.

(3) A third reason for choosing A as corresponding to 10-2-0-0-0 3 Ahau 3 Ceh is that, if we do so, a very natural historical cause for the decay of the Initial Series system of reckoning time developes. In 10-3-0-0-0 1 Ahau 3 Yaxkin, about ten years after the Initial Series of the Chichen Itza lintel, the Mayas abandoned that site according to The Books of Chilan Balam, and removed to Champoton, on the west coast of Yucatan, near Campeache. Including the forty years' wanderings in the wilderness before reaching Champoton, and another forty years after the abandonment of Champoton, in all 360 years elapsed before the Mayas returned, and occupied Chichen Itza a second time. During this long exodus, a great part of which was spent in wandering without fixed homes, the knowledge, or at any rate the general use, of the Initial Series may have been forgotten. The use of either B or C, on the other hand, developes no long gap, like the removal to Champoton, in the sequence of the katuns to account for the discontinuance of the Initial Series.

(4) A fourth reason for using A as corresponding to 10-2-0-0-0 3 Ahau 3 Ceh is, that if we omit the part dealing with the month in the passage from The Book of Chilan Balam

of Mani used by Professor Seler in his correlation, the correlation I propose receives satisfactory corroboration from this source. My correlation assigns to Stela 9 at Copan a date between the years 284 and 304 A.D., depending upon what tun of Katun 13 Ahau coincided with the year 1536. Using the passage in *The Book of Chilán Balam of Mani*, amended as I propose, which states that the first tun of Katun 5 Ahau occurred in 1593, a date 282 A.D. is reached for Stela 9 at Copan. This date 282 A.D. is within 2 years and 22 years respectively of the two limits 284 and 304 A.D. reached by my correlation for this monument. Moreover, if we care to assume that the date of Naput Xiu's death was 9 Imix 19 Tzec instead of the 9 Imix 18 Tzec actually recorded, as Mr. Bowditch was obliged to do in order to reach his correlation, my date for Stela 9 at Copan becomes 294 A.D., or within 12 years of the date for this monument reached by a different process based upon a different passage in the *Chronicles*.

A comparative idea of the three correlations presented in the foregoing discussion is best gathered by a review of the dates in *Christian Chronology* which they assign to the same Initial Series,—Stela 9 at Copan, for example. Professor Seler's date of 1255 B.C. for this is by far the oldest; Mr. Bowditch's date, 34 A.D., comes next. My own correlation assigns a date to this monument somewhere between the years 284 to 304 A.D., which an assumption made by both Mr. Bowditch and Professor Seler in their correlations would narrow to 294 A.D. Finally, the passage from *The Book of Chilán Balam of Mani*, as I have amended it, gives the date of this monument as 282 A.D.

I suggest, in conclusion, that in view of the evidence presented, the correlation which I have proposed is less open to error than either of the other two for the following reasons:

- (1) It involves no textual changes in the original sources as do the other two;
- (2) It develops no anachronism as do the other two; and
- (3) It presumes less in its postulates than do the other two.

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ARCHAEOLOGICAL DISCUSSIONS¹

SUMMARIES OF ORIGINAL ARTICLES CHIEFLY IN CURRENT PUBLICATIONS

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GENERAL AND MISCELLANEOUS

The Evolution of Quaternary Art.—In *R. Arch.* XIII, 1909, pp. 378-411 (13 figs.), Abbé HENRI BREUIL gives a critical account of the discoveries, investigations, and theories of the late Édouard Piette and traces the development of quaternary art. Sculpture in the round preceded reliefs and linear drawing in general, yet the earliest drawings are hardly less early than the earliest sculptures in the round.

The Cult of the Sun in Prehistoric Times.—In *R. Arch.* XIII, 1909, pp. 305-357 (31 figs.), and XIV, 1909, pp. 94-123 (16 figs.), J. DÉCHELETTE discusses the cult of the sun in prehistoric times. Starting with the premise that mere decoration is not the purpose of the earliest art, he passes in review prehistoric monuments of different classes from places as widely separated as Egypt and the Scandinavian peninsula. The sun's disk drawn by a horse is found in the North, also at Syra, and, in degenerate form, on whorls from Troy. The "swastika," curved at first and later angular, takes the place of the disk. The triskelion is also a solar symbol. The boat of the sun led by a dolphin appears on some flat clay vessels from Syra (1500 B.C. at latest). The boat with swans' heads at bow and stern is also the sun's boat. This degenerates into a mere ornamental pattern as time goes on. Evidently it ceased to be understood, at least in some places. In Mycenaean and "Dipylon" art the horse, the swan, the disk, and the "swastika" have solar significance. The amphora from Pitane, some Cretan ossuaries, and various other monuments are interpreted in this sense. As anthropomorphism developed, the place of the sun's disk in a boat was

¹ The departments of Archaeological News and Discussions and of Bibliography of Archaeological Books are conducted by Professor BATES, Editor-in-charge, assisted by Professor C. N. BROWN, Miss MARY H. BUCKINGHAM, Mr. L. D. CASKEY, Miss EDITH H. HALL, Mr. HAROLD R. HASTINGS, Professor ELMER T. MERRILL, Professor FRANK G. MOORE, Professor CHARLES R. MOREY, Miss M. L. NICHOLS, Dr. JAMES M. PATON, Professor LEWIS B. PATON, Professor A. S. PEASE, Professor S. B. PLATNER, Dr. N. P. VLACHOS, and the Editors, especially Professor MARQUAND.

No attempt is made to include in this number of the JOURNAL material published after December 31, 1909.

For an explanation of the abbreviations, see pp. 140, 141.

taken by a human figure. The gorgon has solar connections and the serpents of the aegis may be misunderstood swans' necks. The god with a wheel in Gaul is, though identified with Jupiter, the sun-god. Even in modern village festivals in France, the wheel and the boat survive from the prehistoric sun-worship.

The Art of Petra.—In *Memnon*, III, 1909, pp. 49–76 (7 figs.), J. THOMÄ-QUERUM reports the results of a recent expedition of the German Archaeological Institute to the ruins of Petra under the leadership of the Director, Professor Dalman. All of the remains have been described before, but the photographs are new, and a number of them are of quite unfamiliar objects.

Casian Researches.—In *Memnon*, III, 1909, pp. 1–48, A. WIRTH gathers the evidence which indicates that the primitive race, which he calls the Casian, or Caucasian, from the fact that its modern representatives are settled in the Caucasus Mountains, once spread over southern Europe, western Asia, and northern Africa prior to the settlement of either Semites or Indo-Europeans in these lands. This is proved by the linguistic affinity of Caucasian, Basque, and Berber; by the traditions of the migration of races; by the physical characteristics of the non-Aryan races of the Mediterranean; by archaeological evidence of the similarity of houses, dress, ornaments, burial, and religious rites; and by the study of primitive geographical names in all lands bordering upon the Mediterranean. Names of the Caucasian type are found in Asia Minor, Asia, Eastern Balkans, Greek Archipelago, Western Balkans, Epirus, Greece, the Alps, Germany, Aquitania, Great Britain, the Iberian Peninsula, North Africa, Sicily, Italy, Elam, Syria, and among the Slavonians. This proves the existence of a primitive non-Semitic and non-Aryan race, which must be discriminated as one of the leading races of mankind, and which is not to be identified with Mongol, Hamitic, or any of the other main branches of the human race. For this race the name Casian is preferable to Hittite, Euro-African, or Mediterranean, because Kas was the name by which these peoples designated themselves. Caucasian, which is derived from Kas, is less desirable, because in current usage the Caucasian, or white race, includes Aryan and Semites.

Two New Sabaeen Inscriptions.—In *Or. Lit.* XII, cols. 337–339 (pl.), M. HARTMAN publishes two brief Sabaeen inscriptions discovered by H. Burchardt. One of them contains a new clan name, Nadran (?). The other belongs to the same class as the Ta'lab inscriptions.

Southeastern Elements in the Prehistoric Civilization of Servia.—In *B.S.A.* XIV (session 1907–08), pp. 319–342 (14 figs.), MILOJE M. VASSITS discusses the vases, pottery, and other prehistoric remains found in Servia, especially at Vinča, establishes their connection with the Prehellenic civilization of the Aegean regions, and concludes that the prehistoric settlements of Servia “were formed under the continuous influence of a southeastern civilization. This disposes of the ‘northerly’ influence in the Aegean, and of the other theory of a parallel development of individual branches of one and the same race.” His conclusions are disputed by M. S. THOMPSON and A. J. B. WACE (*Cl. R.* XXIII, 1909, pp. 209–212), who argue that connection with Thessaly or Troy is no proof of Aegean influence in Servia; that Servian pottery is very different from Cretan; that Thessalian culture is non-Aegean, and it is doubtful if there is dependence between it and Servian culture.

Scandinavian Archaeology.—In *Fornvännen*, III, 1908, pp. 1–13 (27 figs.), T. J. ARNE discusses discoveries of the Stone Age made by him in Syria in 1907; pp. 14–27 and 101 (fig.) E. OLSEN publishes a plaque of bone 4.8 cm. square with a Runic inscription of thirty-two letters running round the edge. It was found in a grave at Lund in 1906, dates from about 1000 A.D. and was, perhaps, an amulet; pp. 27–43 (28 figs.), C. WIBLING describes his excavations in northwestern Skåne in 1906; pp. 49–86 (39 figs.), G. HALLSTRÖM continues his discussion of north Scandinavian rock-carvings; pp. 87–92 (8 figs.), M. LEIJONHUFVUD discusses rock-carvings found a few years ago near Blomberg; pp. 105–127 (60 figs.), C. WIBLING, O. ALMGREN, and K. KJELLMARK discuss stone-age remains near Råå in Skåne; pp. 178–200 (11 figs.), A. LINDBLOM discusses an old Roman type of tower in churches of Östergötland; pp. 201–311 (217 figs.) give a list of the acquisitions of the Historiska Museum at Stockholm in 1908.

Archaeology in Croatia.—In the *Vjesnik* of the Croatian Archaeological Society at Zagreb (Agram), X, 1908–09 (Zagreb, 1909, C. Albrecht, 260 pp.; in the Croatian language), the following articles are of interest to archaeologists: pp. 120–134 (21 figs.), V. HOFFILLER describes the discoveries, chiefly bronzes and pottery, made in the ancient cemetery at Velika Gorica; pp. 149–222 (176 figs.), J. BRUNŠMID continues his catalogue of the ancient sculptures in the Croatian National Museum at Agram, giving a brief account of each monument with its bibliography; pp. 231–237 (7 figs.), J. BRUNŠMID continues his account of the prehistoric objects from Srijem.

Ancient Metrology in the Light of Modern Chinese Usage.—C. F. LEHMANN-HAUPT, in *Z. Ethn.* XLI, 1909, pp. 635–643 (fig.), describes a modern Chinese balance and compares the two scales on its beam with Babylonian, Egyptian, and Roman weights. He is convinced that much light may, in a similar way, be cast on many an ancient custom or implement, for old things live on in China as nowhere else in the world.

Museums, Libraries, and Cellars.—In *R. Arch.* XIV, 1909, pp. 267–270, S. REINACH strongly advocates the desirability of separating the contents of museums and of libraries so that general exhibition rooms and easily accessible shelves shall contain only what is of general utility, the other material in the collections being removed from the public and placed where it can be consulted by specialists.

The Greek Papyri and the New Testament.—In *Bibl. World*, XXXIV, 1909, pp. 151–158 (2 pls.), G. MILLIGAN gives an account of the papyri found in Egypt in recent years, describing the technical processes of their manufacture, giving the history of their discovery, and finally their importance for the student of the New Testament.

Charles Perrault, Critic of Art.—In *R. Arch.* XIV, 1909, pp. 203–215, S. REINACH quotes and discusses passages from the *Parallèle des anciens et des modernes, en ce qui regarde les arts et les sciences* (1688), in which ancient art is criticised and found inferior to modern art. Charles Perrault was *contrôleur général des bâtiments du roi* under Louis XIV.

EGYPT

Palaeolithic Implements from Upper Egypt.—In *Z. Ethn.* XLI, 1909, pp. 735–744, G. SCHWEINFURTH describes, from a geological point of

view, the old quarries used by the Egyptians of the Stone Age and the implements found in them.

Notes on Some Egyptian Antiquities.—In *S. Bibl. Arch.* XXXI, 1909, p. 255 (pl.), W. L. NASH publishes notes on (1) a bronze axe-head, inscribed "Men Kheper Ra, beloved of Amen, when he stretched the cord in Zezer Amen Khut," referring to the foundation of a temple which may be either that which stood above the eleventh dynasty temple of Mentu-hetep, or that recently discovered at the entrance to the valley leading to the temple of Hatshepsut; (2) a small vase of green glazed faience inscribed with hieroglyphs; (3) a steatopygous figure of doubtful date; a fusiform object of hard sandstone inscribed, Ra Nefer Ab—Psamthek II, resembling possibly the roll of papyrus held in the hand of the king at his coronation ceremony.

The Carved Slates.—In *S. Bibl. Arch.* XXXI, 1909, pp. 204–211 (2 pls.), F. LEGGE reviews the various interpretations suggested for the so-called "slate palettes," which he believes to have been votive shields (see *S. Bibl. Arch.* XXII, 1900, p. 135), and holds that the scenes shown on them are "scenes of war in which almost every animal there portrayed represents some tribe or clan engaged"; he then discusses Loret's theory as to the identity of the tribes represented under the guise of the attacking animals, and attempts further to identify various nome-standards by means of these carved slates.

Egyptian Jewelry in Berlin.—In *Ber. Kunsts.* XXX, 1909, cols. 269–275 (10 figs.), Schäfer gives a brief account of the Egyptian jewelry in the Berlin museum, describing particularly a pair of inlaid gold ear-rings dating from the end of the second millennium B.C.

A Portrait of Queen Tiye in Brussels.—In *Bulletin des musées royaux à Bruxelles*, I, 1908, pp. 9–11 (2 figs.), J. CAPART publishes a portrait of Queen Tiye now in Brussels and identifies it as part of the relief from Thebes published in *Annales du Service des antiquités de l'Égypte*, IV, 1903, pp. 177–178.

The First Appearance of the Hittites in the Egyptian Inscriptions.—In *Or. Lit.* XII, 1909, cols. 427–429, W. M. MÜLLER discusses the fact that no express mention of the Hittites is found in Egyptian texts before the time of Thutmose III. In the reign of this king, however, the orthography of the name of the Hittites is firmly established, which implies that the Egyptians must have been in relations with them as early as the period of the Hyksos. This was not far removed from the period in which the Hittites are known to have attacked Babylon. It is to be expected, accordingly, that mention of them may be found as far back as the twelfth Egyptian dynasty, but not earlier, as the form of orthography indicates. The present absence of allusion in early Egyptian texts is to be regarded as accidental.

The Foreigners of Memphis.—In *Rec. Past*, VIII, 1909, pp. 131–136 (15 figs.), W. M. FLINDERS PETRIE discusses briefly some of the small terracotta heads of foreigners found in the foreign quarter at Memphis in 1908. He recognizes Sumerian, Semitic, Persian, Indian, Scythian, and Tibetan types. He also calls attention to the eighteenth dynasty tablets with figures of ears on them found at the temple of Ptah.

The Egyptian Nomes.—In *Abh. Sächs. Ges.* XXVII, 1909, pp. 860–898 (No. 25), G. STEINDORFF discusses the Egyptian nomes and their politi-

cal development. He gives the names of the nomes as they are recorded at different times. He finds no proof that they were ever independent little countries. The division of Egypt into two administrative parts, Upper and Lower Egypt, is discussed in its different forms. A division into three parts is unknown before the middle of the first century after Christ.

The Earliest Marriage-Contracts.—In *S. Bibl. Arch.* XXXI, 1909, pp. 212-220, F. LL. GRIFFITH offers a new translation, with commentary and transcription, of the two papyri in the Louvre collection of the twenty-sixth dynasty which contain the two earliest known marriage-contracts, dating probably about 590 B.C. and 547 B.C.

The Difficulties at Elephantine in the Year 411 B.C.—In *Z. Assyr.* XXIII, 1909, pp. 187-196, A. VAN HOONACKER discusses the Aramaic papyrus published by Euting and Sachau, in which the Jews of Elephantine complain that their temple of Yahu has been destroyed by the Egyptians; and endeavors to show that the ground of the Egyptian's opposition to this temple was that it was irregular, even from a Jewish point of view, and that consequently there is no conflict between this document and the Deuteronomic demand for the centralization of worship.

A Marble Head of a Libyan.—A marble head of a Libyan in the collection of F. W. VON BISSING is published by the owner in *Ath. Mitt.* XXXIV, 1909, pp. 29-32 (pl.). He dates it between 50 B.C. and 50 A.D.

The Fish as a Symbol of the Soul.—In *Arch. Rel.* XII, 1909, pp. 574-575 (fig.), W. SPIEGELBERG calls attention to an Egyptian sarcophagus of Hellenistic or Roman date upon which a fish appears above a mummy which is lying on a bier. The fish seems to be a symbol of the soul; and this suggests a possible origin for the Christian symbol.

The Geography of Eastern Africa in its Connection with Egypt.—E. SCHIAPARELLI, in *Rend. Acc. Lincei*, XVIII, 1909, pp. 49-75, prefaces a discussion of the topography of the regions east and south of Egypt, which are referred to very obscurely on Egyptian monuments, with a description of those regions as they are to-day. Among the causes of the vagueness of the monuments he emphasizes the fact that in ancient times as to-day the change in the nature of the country as one went south on the mountains or in the valley must have been very gradual, and the boundaries, ethnographically speaking, must have been very indistinct between the peoples with varying admixture of negro and Caucasian blood. The negroes, he insists, having no fear of malaria have always been able to hold regions uninhabitable by the whites. Among topographical references discussed are: "the regions of the south"; "the land of the negroes"; Tachonti; Chontihonnofer; Cush, etc. These terms, the writer says, have in addition to a definite, restricted meaning, in very many contexts a vaguer and more extensive use.

BABYLONIA AND ASSYRIA

The Chronology of Berossus.—In *Mitt. Vorderas. Ges.* XIII, 1908, pp. 231-277, P. SCHNABEL investigates the chronological scheme of Berossus as a whole, and shows that he regards the entire duration of the world as 600 sars of years, or 2,160,000 years. This he divides into, first, seven periods of 240 millenniums each, the seven ages of creation; second, a period of 432,000 years for the kings before the flood; third, a period of 36,000 years for

the kings after the flood; and, fourth, a period of 12,000 years for the times of the end. He next considers the fact that both Callisthenes and Berossus, deriving their information independently from Babylonian sources, place the year 2232 B.C. as the beginning of historical times in Babylonia. This date is to be identified with the beginning of the first dynasty of Babylon. The sum total of the kings in Berossus is 1501 years, and agrees with the sum total of the Babylonian List, if we allow for the overlapping of dynasty II and dynasty I. This shows that Berossus must have depended upon Babylonian sources similar to the List of Kings, but the figures that he gives for the particular dynasties do not agree with the figures of the Babylonian List. This Schnabel seeks to explain by the hypothesis of a different reckoning of dynasties and a transposition of some of the figures.

Rim-Sin and Samsuiluna.—In *Z. Assyr.* XXIII, 1909, pp. 73–89, A. UNGNAD presents evidence to show that although Rim-Sin was defeated by Hammurabi, he was not overthrown by him, but retained his sovereignty over the region of Emutbal, and at the beginning of Samsuiluna's reign took advantage of the general confusion in Babylonia to conquer the city of Uruk. He cannot have remained long in possession of it, for in the eleventh year of his reign Samsuiluna rebuilt the wall of Uruk. It was, accordingly, in his tenth year that Samsuiluna captured Uruk and drove Rim-Sin out of Babylonia.

A Contract from Hana.—In *J. Asiat.* XIII, 1909, pp. 149–156, F. THUREAU-DANGIN publishes an additional tablet from the kingdom of Hana, from which three or four documents are already known. It contains a contract executed under a king who bears the Kassite name of Kashtiliashu, and relates to the sale of a tract of land situated in the territory of Tirqa, the capital city of Hana.

Amalek in the Babylonian Inscriptions.—In *Or. Lit.* XII, 1909, cols. 241–245, H. GRIMME gathers evidence to prove that the familiar Babylonian geographical name Meluḫa is etymologically identical with the Old Testament name Amalek. From this he concludes that Amalek was a Semitic people; and, by a comparison of Babylonian texts with the Old Testament, is able to give a fairly complete history of the region lying between the Egyptian delta, Northwestern Arabia, and the south of Judah, from about 2500 B.C. down to the destruction of the Amalekites by Saul.

The Name Abraham in Babylonian.—In *Exp. Times*, XXI, 1909, pp. 88–90, S. LANGDON calls attention to errors which have been made with regard to the name of Abraham occurring in a certain contract-tablet in the Royal Museum at Berlin, catalogued as Vat. 1473, but gives several translations of texts of other tablets also in the Berlin museum to prove that the name Abrām was current in the days of Hammurabi in Babylonia. This he interprets as meaning "love the father."

Aramaic Inscriptions from Babylon.—In *Eph. Sem. Ep.* III, 1909, pp. 12–19, M. LIDZBARSKI reprints the Aramaic dockets of Babylonian cuneiform tablets published by A. T. Clay in *Old Testament and Semitic Studies in Memory of W. R. Harper*, Vol. I, pp. 285–322, so far as these inscriptions have not been published already in *Eph. Sem. Ep.* II, pp. 203 ff. He also reports Clay's additions to earlier discussions of these inscriptions. The texts are interesting as showing that the old Sumerian name of the god En-lil was pronounced El-lil and was in use down to the latest times in

Babylonia. They also contain a number of Jewish names compounded with Yahweh.

The Babylonian God Tamūz.—In *Abh. Sächs. Ges.* XXVII, 1909, pp. 698-738 (No. 20), HEINRICH ZIMMERN puts together the information concerning the god Tamūz derived from inscriptions. The name is Sumerian and meant originally "True Son of the Depths of the Water." Tamūz was a god of vegetation, and his astral connections are of relatively late origin. His relations to other gods, his cult, and the myths relating to him are briefly discussed.

A Hymn to Ishtar.—In *Mitt. Vorderas. Ges.* XIII, 1908, pp. 206-230, A. SCHOLLMAYER discusses the Hymn to Ishtar first published by Pinches in *S. Bibl. Arch.* XVII, and also several duplicates of parts of this hymn in Reisner's *Hymns* and Haupt's *Akkadian and Sumerian Hymns*. The hymn is given in full in transliteration and translation with a commentary. It is a Sumerian and Babylonian bilingual, and it contains in its first part a lament of the goddess over the destruction of her city and temple by a foreign enemy, perhaps the destruction of Erech by the Elamites; and in the second part a song of praise of herself uttered by the goddess.

Babylonian Orientation.—In *Z. Assyr.* XXIII, 1909, pp. 196-208, M. JASTROW, Jr., discusses the order in which the Babylonians enumerated the points of the compass. Against the view of Kugler that they began with the north, he maintains that the evidence is insufficient, and that for astrological purposes the south was taken as the starting-point. Another method of orientation beginning with the east was usual in acts of worship.

The Number Forty among the Semites.—In *Abh. Sächs. Ges.* XXVII (No. 4), 1909, pp. 91-138, W. H. ROSCHER discusses the significance of the number *forty* among the Semites. In *Sitzb. Sächs. Ges.* LXI, 1909, pp. 15-206, he examines the lore attached to this number by the Greeks and by other peoples.

Anklets as a Sign of Nobility among the Semites.—In *Or. Lit.* XII, 1909, cols. 381-382, W. M. MÜLLER calls attention to a statement of the Elephantine papyrus that an offending Persian official was deprived of his anklets, and points out that on the old Egyptian monuments distinguished Asiatics are often represented wearing heavy rings of gold or silver around the ankle, and that these were evidently regarded as badges of high office.

The Relative Value of Gold and Silver in Babylonia.—In *Or. Lit.* XII, 1909, cols. 382-384, F. THUREAU-DANGIN calls attention to a tablet of the time of Hammurabi which shows that in his period silver had $\frac{1}{6}$ the value of an equal weight of gold, and copper $\frac{1}{3600}$ of an equal weight. These relations correspond to the old Babylonian sexagesimal system, and it is probable, therefore, that they were already fixed by the Sumerians.

Measures of Capacity in Archaic Texts from Tello.—In *J. Asiat.* XIII, 1909, pp. 245-248, A. DE LA FUYE subjects the ancient measures of capacity from Tello to a reëxamination and comes to the conclusion that his statements in *J. Asiat.* VI, 1905, need modification. The facts are, that the *gur sag-gal* was different from the *gur lugal*, or *gur Agade*; that the *gur sag-gal* contained 144 *qa*, and that the *gur sag-gal* and its subdivisions were represented in texts of the pre-Sargonic period by a double system of notation: the first, which was commonly employed, used a series of curved

lines; the second employed cuneiform signs in addition to the curved symbols.

Oriental Cylinders.—In *R. Arch.* XIII, 1909, pp. 297–304 (pl., reproducing eight cylinders), L. DELAPORTE describes nine Oriental cylinders in the collection of the late Albert Maignan. On three of them Eabani (part man and part bull) appears in conflict with a beast or with Gilgames. On the third of these are three scenes, in one of which a nude woman appears. This cylinder is Babylonian. On the fourth cylinder are a seated god and two standing persons, one of whom wears a horned tiara. Two cylinders exhibit a standing female deity before whom is a standing bearded person. Both cylinders, like No. 4, are inscribed. On the seventh cylinder are four standing figures, perhaps all deities. Before the chief divinity is the symbol of the moon-god Sin. This is also on Nos. 4, 5, and 6. On the eighth cylinder are two Syro-Cappadocian scenes: a seated deity before whom stands a nude female, and a standing deity opposite another standing person. The ninth cylinder, not published, is very badly executed. On it two rows of animals are represented. *Ibid.* XIV, 1909, pp. 250–253 (pl.), L. DELAPORTE publishes a new seal of the scribe Ur-Enlil, son of Kašā(g)-ab, of the period of the kings of Ur. It is in the collection of Mr. J. Bessonneau. Toward a god, seated to left, a divinity advances leading a carefully shaven person who holds his right hand before his face. In the field before the seated deity is the crescent surmounted by a disk in which is a star of four points between which are groups of undulating rays. Between the other persons is the lion-headed eagle. The support of the seated deity is a goat to whose head is attached a cord which passes over the god's shoulder and is held by his left hand. Other examples of animals as supports are cited. Why this scribe possessed two seals is not known.

Ashurbanipal and the Assyrian Civilization of his Times.—In *Alt. Or.* XI, pp. 1–44 (17 figs.), F. DELITZSCH gives a survey of the history of the period of Ashurbanipal and of the civilization of that period in the light of the most recent researches, particularly those that have lately been carried on by the German expedition at the city of Ashur. The sketch contains an account of Ashurbanipal's conquests and of the legends based upon them by Greek historians; of hunting, military organization, architecture, sculpture, furniture, trade, literature, and music. Valuable supplements contain extracts from Greek historians, and a chronological table of the Assyrian monarchs based upon the latest discoveries in the excavations of Ashur.

Assyriological Literature.—In *J. Asiat.* XIII, 1909, pp. 179–224 and 359–418, C. FOSSEY gives an elaborate account of the progress of Assyrian science in its various branches during the years 1905–1906.

SYRIA AND PALESTINE

Phoenicians, Judæo-Hellenes, and Berbers in the Basin of the Mediterranean.—In *J. Asiat.* XIII, 1909, pp. 225–234, M. SCHWAB discusses two works recently published by N. Slouschz on the Hebræo-Phoenicians and the Judæo-Hellenes and Judæo-Berbers, in which he maintains that as early as the eleventh century B.C. the Hebrews and Phoenicians constituted a homogeneous race, which spread through colonies to all parts of

the Mediterranean; and that the descendants of these early settlers constitute the Jewish colonies that are now to be found in northern Africa and Europe. The peculiar traits of separateness from other races and of persistence of type, that are supposed to be characteristic of the Jews, really date back to the ancient period of the Hebraeo-Phoenician colonies.

The Monuments at the Nahr el-Kelb. — In *Alt. Or.* X, 1909, Pt. 4, pp. 1-27 (4 figs.), H. WINCKLER investigates anew the antiquities situated at the mouth of the Nahr el-Kelb, or Dog River, near Beirut. These consist of three monuments of Rameses II and one each of Tiglath-Pileser I, Ashurnasirpal, Shalmanezar II, Adad-nirari, Tiglath-Pileser III, Sennacherib, Esarhaddon, and Nebuchadnezzar. There are also remains of the ancient road and of the Roman road that ran around the promontory.

Ancient Palestinian Topography. — In *J. Bibl. Lit.* XXVIII, 1909, pp. 26-33, G. A. BARTON enumerates the places in Palestine which may be regarded as definitely identified with Biblical sites, and discusses other proposed identifications which seem to him uncertain.

The Scene of Abraham's Sacrifice. — In *Exp. Times*, XXI, 1909, pp. 86-88, A. H. SAYCE claims that the temple-hill at Jerusalem was the scene of Abraham's sacrifice, that it had already been a sacred spot in neolithic times, that subsequently there arose here a high-place formed of monoliths such as that discovered by Macalister at Gezer, and that here in the sacred grove Abraham found the ram. Before the age of David, the monoliths had made way for a "temple," perhaps under Hittite influence. In the history of this temple-hill at Jerusalem, therefore, he finds a parallel to that of the rock-shrine which he discovered in Nubia near Dirr, where the same persistence of a cult can be traced.

Studies in Galilee. — In his *Studies in Galilee* (Chicago, 1909, University of Chicago Press, xv, 154 pp.; 33 figs., 8vo, \$1.12), Dr. G. W. G. MASTERMAN discusses the topography of Galilee, taking up in turn its physical features, boundaries, and chief towns; its inland fisheries; Gennesaret, Capernaum, Chorazin, and Bethsaida; the ancient synagogues; and, finally, Galilee in the time of Christ.

A Temple of Mithra in Galilee. — In *Or. Lit.* XII, 1909, cols. 425-427, R. EISLER calls attention to a passage in the *Sohar* of Moses of Leon which shows that a sanctuary of Mithra must have existed in Galilee, and that the chief rites of the cult of Mithra were known to the Jewish Rabbis of the early Christian centuries.

The Inscription of Zakir, King of Hamath. — In *Eph. Sem. Ep.* III, 1909, pp. 1-11, M. LIDZBARSKI reprints the Aramaic inscription on the stele of Zakir published by Pognon in *Inscriptions sémitiques*, Paris, 1907-08, and summarizes the results of the discussions of this inscription that have gone on during the past year. The text is accompanied by a translation and commentary. In *J. Bibl. Lit.* XXVIII, 1909, pp. 57-70, J. A. MONTGOMERY publishes some additional notes and restorations.

The Teima Stone. — In *Bibl. World*, XXXIII, 1909, pp. 424-425 (pl.), E. J. GOODSPEED gives an account of the history of the famous Teima Stone of the Louvre, together with a concise statement of its importance and significance as an early example of Aramaic epigraphy and as "affording an unusual glimpse of the religious life of ancient polytheistic Arabia, in the time of Nehemiah the governor, Ezra the scribe, and Geshen the Arabian."

Aramaic and Phoenician Ostraka.—In *Eph. Sem. Ep.* III, 1909, pp. 19–29 (3 pls.), M. LIDZBARSKI publishes eight ostraka that are found in the library at Strassburg, and in the Antiquarium at Munich. They are of the same type as the recently published ostraka from Elephantine.

Alasiotas.—In *Memnon*, III, 1909, pp. 90–92, G. HÜSING discusses the bilingual text discovered by Ohnefalsch-Richter at Frangissa near Tamassus, in Cyprus, in which the Greek name *Alasiotas* is transcribed into Phoenician as *Alahiotas*. He explains this as due to a dialectic peculiarity of the Phoenician spoken in Cyprus, by which the letter *h* came to stand for the sound *sh*. The change is similar to that by which the Babylonian suffixes beginning with *sh* are represented in Hebrew and Phoenician by *h*. *Alasiotas* is certainly the Alashia of the Tell-el-Amarna letters. He seeks further to show that Yatnan, the later Assyrian name for Cyprus, is a corruption of Alashia.

The God "Lord of the House."—In *Z. Assy.* XXIII, 1909, pp. 184–186, T. NÖLDEKE discusses the Nabatean inscriptions published by Torrey in *J.A.O.S.* XXIX, pp. 197 ff., in which, along with the goddess Al-'Uzzā, a deity called the "Lord of the House" is mentioned. He refers to Sūra 106 of the Qurān, in which Muhammad speaks of the god of the Ka'ba at Mecca as "Lord of this house." It is possible, accordingly, that the deity worshipped at Petra was the Meccan divinity, Hubal.

The Gezer Inscription.—In *Pal. Ex. Fund*, XLI, 1909, pp. 189–193, G. B. GRAY adds some notes to his original publication of the Gezer inscription (*ibid.* XLI, pp. 26–34) in reply to Father Vincent's discussion of it in *R. Bibl.* 1909, pp. 213–269. *Ibid.* pp. 194–195, M. LIDZBARSKI also refutes Father Vincent's reading of the much discussed character as *nun* and insists that it is *vaw*. A further discussion of this inscription is contributed by K. MARTI, *Z. Alttest. Wiss.* XXIX, 1909, pp. 222–229 (pl.).

The Old Hebrew Alphabet and the Gezer Tablet.—In *Pal. Ex. Fund*, XLI, 1909, pp. 284–309, S. A. COOK investigates very fully the much discussed problem as to the date of the Gezer tablet and its place in Hebrew epigraphy, maintaining his previously expressed view that, from the paleographical evidence as well as on archaeological grounds, it should be dated "somewhere about the exile."

The Semitic Alphabet.—In *Z. Morgenl. Ges.* LXIII, 1909, pp. 189–198, F. PRAETORIUS discusses the relation of the Canaanite and the South Semitic forms of the alphabet. We do not know the date of the South Arabian inscriptions, but they are certainly not later than 700 B.C., which is 150 years after the Mesha inscription. Both forms of writing show a high degree of development when we first meet them, so that these scripts must have been in use for a longer time, both in Canaan and in Arabia, than we have literary evidence of their existence. It is impossible to derive the South Semitic alphabet from that of the Mesha inscription, and equally impossible to derive the alphabet of Mesha from the South Arabian. Both must be regarded as descendants of a common original. This is to be sought in a primitive form of the Cypriote syllabary. The varied forms of *s*, for instance, in South Arabian and in Canaanite, can be explained most readily as derived from the Cypriote syllables *si* and *sa*. Similarly, the Canaanite *m* is derived from Cypriote *me* and South Semitic *m* from Cypriote *mi*.

The Cult of Baal and Astarte in England.—In *Pal. Ex. Fund*, XLI,

1909, pp. 280-284, S. A. COOK restates the evidence for the Baal and Astarte worship in England and presents the problems connected therewith.

The Date of Deuteronomy.—In *Exp. Times*, XXI, 1909, pp. 45-46, A. H. SAYCE reviews a paper recently read before the French Academy by Professor Naville, entitled "Une Interprétation égyptienne d'un Texte biblique : la Découverte de la Loi sous le roi Josias." The paper gives the results of an exhaustive examination of the Egyptian evidence for the belief that the Jewish Book of the Law, usually identified with Deuteronomy, discovered in the Temple at Jerusalem during the reign of Josiah, was placed in the walls of that temple when it was built by Solomon. It is further explained that the book was intended to be so placed in the foundations of the temple, and was really "The Books of the Law in a single Book," written for that purpose. Professor Sayce also claims that Proverbs 25:1 gives support to the conclusions of the paper.

Notes on New Discoveries.—In *Pal. Ex. Fund*, XLI, 1909, pp. 266-275, C. R. CONDER publishes notes on certain points in Bible history on which light has been thrown by the recent explorations in Western Asia.

A Phœnician Drachm with the Name of Jehovah.—In *Num. Chron.* 1909, pp. 121-131 (3 ill.), A. W. HANDS describes a much discussed, unique Phœnician drachm in the British Museum, which has on the obverse a bearded, helmeted head, and on the reverse a bearded divinity holding an eagle and seated in a car with a winged wheel. On his right is a human head, above which are the Phœnician forms of the Hebrew letters *yod, he, vau*. The coin was apparently struck at Sidon or Gaza between 405 and 380 B.C., and marks an attempt to identify the chief Hebrew deity with the Greek Zeus.

Alexandrine Coinage of Phœnicia.—In *Nomisma*, IV, 1909, pp. 1-15, G. F. HILL establishes the character and chronological sequence of the "Alexanders" from the mints of Arados (with its subsidiary mints, Karne and Marathos), Sidon, Ake-Ptolemais, and Tyre.

Greek Inscriptions in Syria.—In Parts II and III, Section B, Division III, of the *Publications of the Princeton University Archaeological Expedition to Syria in 1904-1905* (76 pp.; map; 48 figs. Leyden, 1909, E. J. Brill), W. K. PRENTICE publishes 164 Greek inscriptions from Northern Syria. Most of them are short and of a semi-religious character. In *Mél. Fac. Or.* III, 1909, pp. 713-752, L. JALABERT discusses some of the readings and restorations in Part I, as well as in Part III of the *Publications of an American Archaeological Expedition to Syria in 1899-1900*.

Ancient Architecture in Syria.—In Parts II and III, Section B, Division II, of the *Publications of the Princeton University Archaeological Expedition to Syria in 1904-1905* (101 pp.; 3 maps; 11 pls.; 127 figs. Leyden, 1909, E. J. Brill), H. C. BUTLER describes the architectural remains at thirty different sites in Northern Syria. Part II deals with new material, while Part III is largely an amplification of de Vogüé's work in the same regions. Important churches, houses, tombs, and other buildings are discussed in detail. The more important sites visited were Il-Anderin, Kerrâtin, Ma'crâtâ, and Serdjillâ.

ASIA MINOR

Notes on Antiquities in Asia Minor.—In *Exp. Times*, XXI, 1909, pp. 64-66, Sir W. M. RAMSAY contributes two notes on antiquities in Asia Minor. In the first he makes certain corrections, in the light of the critical text of the Hieronymian Martyrology, published by Monsignor Duchesne, in the list of the Syriac Martyrology relating to Gaianus, martyr at Ancyra in Galatia; the entry probably refers to a martyrdom on a large scale on the day of a festival celebrated either August 31 or September 4, under Domitian, Trajan, or Hadrian at Ancyra. In the second note, on the "Armed Priestesses in the Hittite Religion," he cites a sculptured figure on one of the door-posts of the east gate of Boghaz Keui, which is likened to "an Amazon armed," as confirming his interpretation of the similar figures in the famous rock-sanctuary near Boghaz Keui, as armed priestesses.

Three Small Bronzes from Asia Minor.—Three small bronze figures are published by H. S. COWPER in *J.H.S.* XXIX, 1909, pp. 192-197 (4 figs.). The first, about 4 inches high, from Samos, apparently represents the earliest efforts of bronze casting in that cradle of the art, and may be contemporary with Rhoecus, Theodorus, and Telecles, who are said to have invented it in the sixth century B.C. with the help of a visit to Egypt. In type the bronze stands between the plank-like figure of the Nicandra statue at Athens and the post-like Samian statue of Hera, in the Louvre. Three archaic bronzes which belong in the same group with this one have been found at Sesso and Vulci, Italy, and at Melos. The hair of the Samian figure suggests Egyptian influence. It has no lock falling in front of the shoulders. A bronze blade about 15 inches long, belonging to a short thrusting sword, is said to have been found with it. A bronze figure of Artemis of the huntress type with knotted hair, short garment, boots and a bow, comes from Ephesus. It is nearly 6 inches high. Several figures in Reinach's *Répertoire* may be compared. A grotesque little figure from Mylasa in Caria, less than 3 inches high, represents a trumpeter blowing his trumpet with all his might. The head, besides being caricatured in the details, is immensely large in proportion to the body, and the body is much too large for the legs.

The Discoveries at Boghaz Keui.—In *Bibl. World*, XXXIII, 1909, pp. 367-381, A. H. SAYCE discusses the results of the discoveries made by Winckler and others in 1906 and 1907 at Boghaz Keui in Cappadocia, which, he maintains, have confirmed his own theory propounded some thirty years ago with regard to the power of the Hittite empire in the latter part of the second millennium B.C. He gives a summary of this new chapter which has been added to Oriental history, and a statement of our present knowledge of the Hittites, their power and influence, as well as their language. He also states that the cuneiform tablets recently discovered at Boghaz Keui confirm him in his belief that he holds the key to the decipherment of the Hittite hieroglyphic inscriptions. A popular article on Boghaz Keui (Keouy) is contributed by ISABEL F. DODD to the *National Geographic Magazine*, XXI, 1910, pp. 111-124 (11 figs.).

Architectural Fragments from Ephesus.—In *Jh. Oest. Arch. I.* XII, 1909, pp. 172-178 (5 figs.), W. AMELUNG identifies four small architectural fragments of marble, found in the market-place at Ephesus and published

by Benndorf (*Ibid.* V, p. 180, Fig. 51), as the small building above the head of statues of the Ephesian Artemis. A fragment in the Villa Albani and a statuette of the goddess in the Capitoline Museum are the evidence for the identification. The building had four façades, but its purpose is not clear.

A Relief from Ephesus.—In *Jh. Oest. Arch. I.* XII, 1909, pp. 178–182 (5 figs.), W. AMELUNG compares the small female figure in relief from the monument of Marcus Aurelius at Ephesus with the Athena in the Louvre believed by Reisch and Sauer to be a copy of the cult statue of the Hephaestum at Athens, and with an Artemis in Liverpool. He also points out the resemblance of the colossal head of Athena in the British Museum. All of these works go back to originals of the latter part of the fifth century.

The Temple of Artemis at Ephesus.—A. E. HENDERSON's article on the temple of Artemis at Ephesus published in the *Journal of the Royal Institute of British Architects*, December 5, 1908, is reprinted in part in *Rec. Past*, VIII, 1909, pp. 195–206 (6 figs.). The greater part of the paper is devoted to the temple of the time of Croesus.

The So-called Basilica at Pergamon.—The theory of Michaelis that the word βασιλική was used by the Greeks to designate closed buildings and also open stoas is combated by G. LEROUX, *B.C.H.* XXXIII, 1909, pp. 238–244. There is no evidence for the existence of a "basilica" at Pergamon except the tiles with the inscription βασιλική (κεραμίδς). This, however, means tile from the royal factory. The mention of a στοὰ βασιλική at Thera in an inscription of the second century A.D. is simply a translation of the Roman term. The foundations uncovered east of the Theseum at Athens and at first thought to belong to a long stoa, the Stoa Basileios, turned out to be those of a small building, possibly a temple.

The Mercenaries and Military Colonies of Pergamon.—In *R. Arch.* XIII, 1909, pp. 363–377, A. J. REINACH continues (see *A.J.A.* XIII, 1909, pp. 200 and 489) his study of the mercenaries and military colonies of Pergamon, treating in this number of the Aetolians and Achaeans and the Cretans. *Ibid.* XIV, 1909, pp. 55–70 (fig.), he treats of the Trallians from Thrace.

An Ionian Law Earlier than Solon.—Under the title 'Nordionische Steine,' U. v. WILAMOWITZ-MOELLENDORF has published in *Abh. Berl. Akad.* 1909, a series of interesting inscriptions discovered by Paul Jacobsthal at Chios and Erythrae. The most important one, though sadly mutilated, was found at Tholopotami, near the city of Chios. The characters, very archaic and engraved *boustrophedon*, are not later than 600 B.C. There was at that time, we know, a popular assembly at Chios in which the tribes (the number of which is unknown) were represented, as in the constitution of Cleisthenes at Athens, and this assembly dispensed justice. The assembly met once a month to consider public affairs, i.e. take part in administration. The tendencies are the same as those seen later at Athens. Evidently the foundations of Greek social organization, as of poetry and philosophy, were laid in Ionia. (Summarized by S. R., *R. Arch.* XIV, 1909, pp. 279–280.)

Attis-cult in Cyzicus.—The numismatic witness to the prevalence and character of the worship of Attis in Cyzicus is set forth by H. von FRITZE in *Nomisma*, IV, 1909, pp. 33–42 (pl.).

The Site of Troy.—In *Der Schauplatz der Ilias und Odyssee*, Erstes Heft, *Die Lage der Stadt Troja* (Berlin-Grunewald, 1909, privately printed.

61 pp.; map), A. GRUHN argues that the Troy of Homer cannot be identified with the ruins at Hissarlik, but must rather be sought at Dudén.

Antiquities at Brusa.—A catalogue of the Greek, Roman, and Byzantine antiquities in the museum at Brusa is published by G. MENDEL, *B.C.H.* XXXIII, 1909, pp. 245-435 (3 pls.; 87 figs.).

GREECE

SCULPTURE

Archaic Marbles in the Acropolis Museum.—In his *Archaische Marmor-Skulpturen im Akropolis-Museum zu Athen* (Vienna, 1909, A. Holder. 87 pp.; 77 figs.) H. SCHRADER presents the more important results of his study of the archaic marble fragments in the Acropolis Museum at Athens. Many new pieces have been added to familiar figures, sometimes with surprising results. The Gorgon's head (No. 701) belonged to a running, winged figure which served as the middle acroterion of the old temple of Athena. The lower part of No. 682, one of the standing female figures, has been added, almost completing the statue except for the arms. The lower part of No. 669 has also been restored to its original place. The lower left leg of the nude youth (No. 696) has been added to the torso, materially changing the appearance of the figure. The more important additions to the figures of animals are the muzzle and right fore-paw of the dog (No. 143); the left fore-leg of the horse (No. 700); and both fore-legs of another horse (No. 697).

The Asiatic, or Winged, Artemis.—The question of the origin and home of the Asiatic, or winged form of the *πρόρνα θηρῶν* has to be discussed anew since the discovery at the shrine of Artemis Orthia, at Sparta, of a vast number of votive offerings in ivory, bone, lead, and terra-cotta, in which the goddess is represented as mistress of the animal and vegetable worlds, and usually, though not always, with wings. These go back to the very beginning of the Dorian epoch here, appearing along with geometric pottery toward the end of the ninth century. This evidence, together with the distribution and dates of the comparatively few examples of the type found elsewhere, suggests that Orthia, the "upright," is a local form of the pre-Hellenic and, originally, aniconic nature-goddess of Crete and Aegean lands, which received influences from the region of Asiatic winged divinities in the unsettled period following the break-up of Cretan supremacy, when an Achaean-Dorian route of communication was established across the southern Aegean to Thera, Rhodes, Cyprus, and the interior of Asia Minor, but that it never had anything to do with Ionian Asia Minor. The occasional appearance of a winged male deity in the same place shows a survival of the old conception of a divine pair in which the female idea predominated. The winged type continued through the sixth century, but finally died out as Orthia, like so many other local goddesses with very primitive cults, and became more fully identified with one form of Artemis. In the time of Pausanias (V, 19, 5, chest of Cypselus) it was no longer intelligible. (M. S. THOMPSON, *J.H.S.* XXIX, 1909, pp. 286-307; 13 figs.)

The Sculptures of the Treasury of the Cnidians.—The assembly of the gods and the gigantomachy on the Treasury of the Cnidians at Delphi are discussed by G. KARO in *Ath. Mitt.* XXXIV, 1909, pp. 167-178 (pl.;

2 figs.). The two slabs containing the assembly of the gods were not contiguous. Between them is to be assumed, perhaps, one of the battles before Troy (Achilles and Memnon?). The gods are identified as follows, beginning at the left end: 1. Ares; 2. Leto; 3. Artemis; 4. Apollo; 5. Dionysus; 6. (Hermes); (Battle scene); 7, 8. (Zeus, Hera or Hera, Zeus); 9. Athena; 10, 11. Demeter and Kore; 12, 13, 14. (Perhaps Aphrodite, Poseidon, Hephaestus, on missing corner slab). No. 5 is Dionysus, because, on the supports of his throne, a maenad pursued by Silenus is represented. In his right hand he held a bronze vine, in his left a thyrsus. No. 4, Apollo, held a bronze bow and arrow in his left hand. In the gigantomachy, Karo agrees with Lechat in making "Hephaestus" Hermes and in restoring the name Cybele to the figure in the chariot drawn by lions. Romaios's identification of the god at the left end as Hephaestus is accepted. He is heating pieces of iron in an oven (traces of which remain) with the help of bellows. The gigantomachy seems to have been derived from a painting.

The Acanthus Column at Delphi.—In *J. Int. Arch. Num.* X, 1907 (published 1909), pp. 295–310 (pl.; 7 figs.), A. D. KERAMOPOULLOS argues that the column at Delphi with leaves about it and three female figures at the top, called by Homolle the "acanthus column," really represents a silphium stalk. It was erected about 400 B.C., by the inhabitants of Ampelus in Cyrenaica (Schol. Arist. *Plut.* 925). The three figures are nymphs, Hesperides, not Caryatids. Two stones of the base are still in position near the site of the tripod of Gelon.

The Athena of the Marsyas Group.—In *Jh. Oest. Arch. I.* XII, 1909, pp. 154–165 (4 pls.; 7 figs.), L. POLLAK publishes a statue of Athena, 1.73 m. high, found in Rome about twenty-five years ago and now in Frankfurt a. M. (Fig. 1). The body is of Pentelic, and the head of Parian marble. The face is perfectly preserved, although both arms and the left foot are broken off. One of the hands still exists, grasping the handle of a spear. The goddess wears a Doric chiton without the aegis, and upon her head a Corinthian helmet. Pollak identifies the statue as the Athena of the group of Athena and Marsyas by Myron.

A Hermes of Polyclitus.—A Polyclitan head in the Boston Museum of Fine Arts, catalogued there as a head of a youth and generally regarded as of the Doryphorus type, belongs in a separate small group with the Boboli Hermes at Florence, a head in the Hermitage Museum, and one in the Museo Torlonia, all marble, and a bronze statuette from Annécý, now at Paris. The various attributes given to these copies—*petasos*, head-wings, infant Dionysus, and *kerykeion*—are, all but the last, false additions of the copyists, but they serve to identify the original as a Hermes. The statuette gives the correct attitude, and the Boston head, which is much the best of the marble copies, gives us some idea of the extreme delicacy of modelling to which the beauty of Polyclitus's work in bronze was attributed by the ancients. In the conception as a whole, which is that of a physically beautiful youth, we can also see why Quintilian denied this artist the highest conception of divinity: *nam ut humanae formae decorem addiderit supra verum, ita non explevisse deorum auctoritatem videtur.* (J. SIEVEKING, *Jb. Arch. I.* XXIV, 1909; pp. 1–7; 2 pls.; 7 figs.)

The Diadumenus and the Doryphorus of Polyclitus.—In *Jh. Oest*



FIGURE 1. — ATHENA (BY MYRON ?) AT FRANKFORT.

Arch. I. XII, 1909, pp. 100-117 (6 figs.), F. HAUSER, replying to Loewy, supports his original argument that the Diadumenus of Polycletus really represents Apollo, producing as further evidence a coin of Delphi and a bronze statuette also found at Delphi. He argues further, that the Doryphorus does not represent an athlete, but the hero Achilles. The figure *nudus talo incessens* (Pliny, *N.H.* XXXIV, 55), he explains as a pancratiast standing on one foot, with the other raised, in the attitude of a statuette found at Autun and now in the Louvre (REINACH, *Répertoire*, II, p. 543, No. 4).

The Bronze Head of a Victor at Olympia.—In *Sitzb. Berl. Akad.* 1909, pp. 694-706 (pl.; 2 figs.), R. KEKULE V. STRADONITZ discusses the bronze portrait head at Olympia, and Greek portrait sculpture in general. He regards the head on grounds of style as a work of the fifth century B.C. The difference between the "ideal" and the "iconic" statues at Olympia was due, not to any rule that only those who had been victorious three times might erect portrait statues (Plin. *N.H.* XXXIV, 16), or the like, but more probably to the fact that many statues of victors were erected long after the victories, even after the death of the persons represented, and such statues were necessarily "ideal." Pliny and others explained the difference in their own more or less fanciful way.

The Artemis Soteira of Cephisodotus.—In *Jh. Oest. Arch. I.* XII, 1909, pp. 185-197 (2 pls.; 5 figs.), V. MACCHIORO publishes a small marble head at Pavia, and argues that it is a copy of the head of the Artemis Soteira of Cephisodotus. He also traces the so-called Sardanapalus at Naples to Cephisodotus.

A Praxitelean Group.—A statue of the youthful Dionysus, of Pentelic marble, which was found at Rome in 1886, on the site of the barracks of the Equites Singulares, and is now at Lugano, corresponds so exactly in dimensions and attitude to the Praxitelean young satyr pouring wine, as to suggest that they belong together. When they are so placed, with the look of both directed toward the cup held between them, the satyr as well as the god is seen to gain greatly in significance. Thus, we probably have what has heretofore been lacking, an example of a group by Praxiteles, and in particular the group with a boy-satyr offering a cup to Dionysus, which Pausanias mentions (I, 20, 1) as among the monuments on the Street of Tripods at Athens. These figures belong to the early period, when Praxiteles was under Peloponnesian influence. No replica of the Dionysus is known, but echoes of its attitude and of the drapery, which is especially fine and bears comparison with that of the Hermes, can be traced in various statues, reliefs, and coins of the Hellenistic and Roman periods. (H. G. EVELYN-WHITE, *J.H.S.* XXIX, 1909, pp. 251-263; 4 figs.)

A Praxitelean Eros.—A statue of Eros, lacking head and hands, which was found on the site of Nicopolis ad Istrum in 1900, is considered by B. FLOW, chiefly on the evidence of coins, to be an Antonine copy of the Eros of Parium by Praxiteles. The original appears to have been an early work, not far in date from the Eros of Thespieae, and still exhibiting Polyclitan influence. (*Jb. Arch. I.* XXIV, 1909, pp. 60-73; pl.; 3 figs.)

A Praxitelean Head found in Chios.—A technical study by J. MARSHALL, of the Chian head of a youthful goddess (*Ant. Denk.* II, Pl. 59) which is now in the Museum of Fine Arts, Boston, is published (in English) in *Jb. Arch. I.* XXIV, 1909, pp. 73-98 (13 figs.). The geometrical scheme

and the great subtlety of modelling to which the head owes its unique charm are explained and compared in detail with the heads by Praxiteles that are known in copies and with the Hermes of Olympia; and the conclusion is reached that the Chian head answers so exactly to the characteristics of the master, as distinguished from his contemporaries, followers, and imitators, as to create a presumption that this is a work of his own hand. Matters incidentally discussed are: the significance and effect of the geometric structure in sculpture and some of its peculiar features, such as the unnatural breadth of the nose; the gradual decay of technical knowledge and artistic conception in the succeeding centuries; the real centre (Athens) of the art known as Alexandrian; and the reasons for variation in Roman copies of great works, made from casts. In a note on ὑγρότης, τὸ ὑγρόν, as applied to the eye, the ancient passages which discuss the quality are quoted, and the meaning is shown to be an effect of relaxation of the muscles, which is much more often a good than a bad quality, and which covers a wider range of ideas than any single English word can express.

Timotheus and Bryaxis.—In *Ausonia*, III, 1908, pp. 91-135 (3 pls.; 23 figs.), W. AMELUNG undertakes to determine the characteristics of the style of Timotheus and of Bryaxis. Starting with fragments from Epidaurus which may with some probability be attributed to Timotheus, he argues that the torso of a Leda in Boston, a statuette of Hygieia from Epidaurus, an Aphrodite at Mantua, and the first part of the Amazon frieze from the Mausoleum should be assigned to him. These will serve as a means of connecting with him other statues. The style of Bryaxis is decorative, and at the same time shows a largeness of conception. The Zeus of Otricoli, a Serapis at Alexandria, a heroic head in the Capitoline Museum, a head in the Villa Albani, a Zeus or Poseidon in Madrid, a Poseidon in the Lateran, a statuette of Heracles in the Villa Albani, and the fourth part of the Amazon frieze from the Mausoleum are to be assigned to him. His influence may be detected in Attic grave reliefs and in the Demeter of Cnidus.

The Maiden of Antium.—In *Παραθήκαια*, X, 1909, pp. 58-59, A. S. ARVANITOPOULLOS suggests that the "Maiden of Antium" (see *A.J.A.* VIII, p. 307; XI, pp. 356 and 460; XII, p. 224) is a copy of the statue of Praxilla by Lysippus.

Euphranor.—Starting with the literary traditions of Euphranor, J. SIX discusses the relations of this artist, who was both painter and sculptor, to Parrhasius and Zeuxis on the one hand, and to Polyclitus and Lysippus on the other, and seeks to get an idea of his work from that of the artists who must have influenced him and been influenced by him. For the human figure he seems to have had a definite canon of proportions of height, but to have made the head and arms too heavy for the somewhat slender body. Among the works the originals of which may be assigned to him are: the Eleusinian Eubuleus head, the so-called heads of Virgil, the Alexander Rondanini at Munich, the Paris of the Vatican, and the Poseidon of the Lateran, as well as an Achilles with Chiron on a wall-painting from Herculaneum. These all show the characteristic heavy head of hair, large, square face, and, where preserved, rather thick arms. (*Jb. Arch. I.* XXIV, 1909, pp. 7-27; 10 figs.)

A Greek Portrait Head.—In *Jh. Oest. Arch. I.* XII, 1909, pp. 198-206 (pl.; 2 figs.), A. HEKLER publishes a male portrait head from Cataio near Padua, now in Vienna. It is of Pentelic marble and in style resembles the

head of the Demosthenes by Polyeuctus. It is a fine example of Greek portraiture, but it cannot as yet be identified. A late copy of the same original is in the Museo delle Terme at Rome.

Greek Grave Monuments in Munich.—In *Mün. Jb. Bild. K.* 1909, pp. 1-21 (pl.; 9 figs.), P. WOLTERS discusses the Greek grave reliefs in the Glyptothek at Munich. Only one of them is a recent acquisition, a stele with a *loutrophoros* carved upon it, received in 1908.

Greek Grave Reliefs from Southern Russia.—In *Griechische Grabreliefs aus Südrussland* (Berlin, 1909, G. Reimer. 148 pp.; 56 pls.; 16 figs. Folio. M. 50), GANGOLF VON KIESERITZKY and CARL WATZINGER publish a *corpus* of the Greek grave reliefs from southern Russia. They have arranged the stelae according to subject into various classes, such as the slabs without figures; those with a seated woman; a standing woman; a standing man; a horseman; a funeral banquet; half figures of men; and half figures of women. Each relief is described and its bibliography given. The greater part of the material for the work was collected by Kieseritzky, who died in 1904; the arrangement for publication was the work of Watzinger.

Grave Reliefs with Dolls.—In 'Εφ. 'Αρχ. 1909, cols. 121-132 (pl.; 4 figs.), P. KASTRIOTES discusses the meaning of the dolls that appear on seven of the Attic grave reliefs, arguing that they do not symbolize the soul, as is generally believed, but are merely playthings of the deceased. Most of them have detached hands and feet, and in one or two cases the doll is handed to the deceased girl by a slave! Two of the seven reliefs are here published for the first time.

A Bronze Statuette of a Gaul.—In the sixty-ninth "Winckelmanns-programm" of the Berlin Archaeological Society, R. KEKULE V. STRADONITZ publishes and discusses a bronze statuette of a fighting Gaul, recently acquired by the Berlin Museum. The Gaul is characterized by his *torques* and sword belt. In his left hand is a small, plum-shaped object, no doubt a sling-shot. The sling was doubtless in the right hand. The left arm once bore a shield. This statuette, said to have been found at Rome, is derived from a group which dated from the second third of the third century B.C., earlier, that is, than the Pergamene statues. Many representations of Gauls are discussed. The attack upon Delphi in 279 B.C. was the probable occasion of many such representations. The bronze statuette from Telamon is some fifty years later. (*Bronzestatue eines Kämpfenden Galliers in den Königlichen Museen. Neunundsechzigstes Programm zum Winckelmannsfeste der Archäologischen Gesellschaft zu Berlin.* Von Reinhard Kekule von Stradonitz. 22 pp.; 3 pls.; fig. 4to. Berlin, 1909, G. Reimer.)

Asclepius and his Family.—In 'Εφ. 'Αρχ. 1909, cols. 133-178 (2 pls.; 15 figs.), I. N. SVORONOS, publishing a charming marble statuette representing a little boy and a fox-goose (described in Friederichs-Wolters, *Gipsabgüsse*, No. 1590), which has recently been placed in the National Museum at Athens, argues that the numerous examples of this class, commonly regarded as *genre* sculpture, have in reality a mythological and religious significance. The goose was a sacred bird of Asclepius, and all these goose-and-child groups whose original location can be traced come from sanctuaries of Asclepius. The author maintains that the various types of boy-and-goose generally represent 'Ιανίσκος, the youngest son of

Asclepius (mentioned by Schol. ad. Arist. *Plut.* 701), whose name offers the best solution of the text corruption in Pliny's description of Boethus's group of the Boy Strangling a Goose, *Nat. Hist.* XXXIV, 84, *infans eximium anserem strangulat*. (The best MS. has *sex annis*, which may well be a corruption of IANNIS9 [>VI ANNIS].) Herondas, *Mim.* IV, 26-34, describes a similar group, which, however, must antedate that of Boethus. The *γέροντα* there referred to was probably a statue of Hippocrates. Other so-called *genre* figures represent Asclepius as an infant, others one of his daughters with a goose. The statuette here published, found in Phocis near one of the chief sources of the Boeotian Cephissus, probably stood upon an inscribed base which has disappeared. (*I. G. Sept.* 232; *Ξενοφάνης Ξενοδώρα Ἀνδρίσκον Καφισσῶ*.) If so, instead of Ianiscus we here have a statue of a boy named Andriscus set up as a votive offering to the Cephissus, whose springs are sources of healing and accordingly closely associated with Asclepius, or the name may be a diminutive of Ἀνδρεΐς, son of the Thesalian river Peneus, who settled on the banks of the Cephissus and became identified with it, the statue representing him in his boyhood. The strangling of the goose, which is a symbol of the fever-breeding pools and marshes, typifies the healing of fevers by Asclepius and his family. The Spinario of the Capitol is probably Ποδαλείριος, another son of Asclepius.

Dionysus learning to Walk.—In *Jh. Oest. Arch.* I. XII, 1909, pp. 215-223 (pl.; 3 figs.), H. SITTE publishes part of a marble sarcophagus relief in a villa near Vienna. At the left stands a nude boy, and from his left shoulder hangs a garland of leaves and fruits which runs along the lower part of the relief. Above this two seated satyrs bend forward towards an infant who stands on a pedestal, resting his right hand on the back of one of the satyrs. At the left is a nymph looking on. The scene is interpreted as the infant Dionysus learning to walk. The same subject is found on two late sarcophagi, one in Munich and the other in the Capitoline Museum in Rome. The original was probably the work of an Alexandrian sculptor.

Representations of the Satyr Drama.—In *Abh. Sächs. Ges.* XXVII (No. 22), 1909, pp. 761-779 (3 pls.; 4 figs.), T. SCHREIBER discusses six reliefs upon which are figures of youthful satyrs, one dancing, and above under a tree a seated muse holding a Silenus mask. In front of her is a large box beside which stands a youthful attendant holding the double flute. Two of the reliefs have but part of the scene. The writer argues that they represent the satyr drama.

Reproductions of Ancient Sculptures at Stettin.—In *Museumskunde*, V, 1909, pp. 129-135 (5 figs.), J. SIEVEKING calls attention to the importance of reproductions of ancient sculptures and urges that they should be made to appear as nearly as possible like the original works. Thus statues of which the originals were bronze, but which are now known only from marble copies, should be restored in bronze. The museum at Stettin has several familiar figures so restored.

The Frankish Inscription on the Mausoleum Frieze.—Block 1010 of the Amazon frieze from the Mausoleum of Halicarnassus, one of twelve stones brought to England in 1846 from the castle of St. Peter, of the Knights Hospitallers at Budrum, bears a badly defaced inscription cut in three lines across the shield of one of the combatants. The letters are now

made out as *F(rater) Christofle | Quatnel Julii(?) | 1510*. They seem to refer to Christoph Waldener, of the Tongue, Germany, who was Castellan of Rhodes in 1522. He may have been captain or visitor at Budrum in 1510. The last part of line 2 is uncertain and may be part of some extraordinary spelling of this or some other name. (F. W. HASLUCK, *J.H.S.* XXIX, 1909, pp. 366-367.)

VASES AND PAINTING

An Amphora of the Dipylon Style.—In *Bulletin des musées royaux à Bruxelles*, I, 1908, pp. 18-21 (2 figs.), J. DE MOT describes an amphora of the Dipylon style, 0.87 m. high, found near Patissia and now in Brussels.

Aristophanes and Vase Paintings.—In *Jb. Oest. Arch. I.* XII, 1909, pp. 80-100 (pl.; 8 figs.), F. HAUSER shows that certain more or less obscure passages in Aristophanes are illustrated by vase paintings. These are *ξανοῦσαν*, *Eccl.* 93; the use of the lamp, *Eccl.* 13; and *ὁ τ' Ἀδωνασμὸς οὗτος οὐπὶ τῶν τεγῶν*, *Lys.* 389. In connection with the scholium on *Eccl.* I, he calls attention to two representations of the potter's wheel not hitherto noticed. The poet's allusions to vase painting were perhaps called forth by the fact that there was a contemporary vase painter of the same name.

The Omphalos.—On an Attic black-figured hydria with white field, which was found in Melos, two satyrs stand gesticulating on either side of an egg-shaped mound decorated with branches, while a bird of prey is perched on the mound and a doe is shown in white silhouette against it. The details of the picture are found separately on other vases, and the scene as a whole illustrates Miss J. Harrison's observations on the omphalos as at the same time tomb and dwelling of the spirit. (E. ROESE, *Arch. Anz.* 1909, cols. 30-33; fig.)

Danae.—In *Jb. Oest. Arch. I.* XII, 1909, pp. 165-171 (8 figs.), R. ENGELMANN publishes an amphora in the museum at Arezzo on which a young woman stands before an open chest talking with an older woman, while behind the lid stands a youth. He argues that this represents Danae. Two other unpublished illustrations of the Danae story, one on a crater in Syracuse and the other on a mosaic from Thenae in Northern Africa, are reproduced.

Heracles and Dionysus in a Gigantomachy.—In *Ausonia*, III, 1908, pp. 57-70 (9 figs.), M. JATTA publishes a South Italian amphora a colonette from Ceglie del Campo, now in the museum at Bari. It dates from the fourth century B.C. and is decorated on one side with a gigantomachy in which Dionysus and Heracles play the most important parts. Jatta finds in this scene a fifth century motive modified by Hellenistic ideas. On the other side of the vase Dionysus appears seated and talking with a youthful satyr while a maenad stands on either side.

A Painted Gravestone from Athens.—On a painted Attic stele in Munich, with *loutrophoros* in relief (cf. p. 223), several short cylindrical objects are seen lying on the ground or hanging beside the vase. These are interpreted by P. WOLTERS as rolls of woollen bands of various colors, to be used in decorating a grave, and they are to be compared with certain square objects in the head-piece of some gravestones in relief. (*Jb. Arch. I.* XXIV, 1909, pp. 53-60; pl.; fig.)

A Catalogue of the Painted Stelae from Pagasae. — In *Κατάλογος τῶν ἐν τῷ Ἀθανασακίῳ Μουσείῳ Βόλου Αρχαιοτήτων* (Athens, 1909, K. Eleutheroudakis; Volo, K. Papaskenopoulos. Pts. II and III, pp. 223-463), A. S. ARVANITOPOULLOS describes the painted stelae from Pagasae in the museum at Volo numbered 42 to 216 inclusive.

INSCRIPTIONS

The Disk from Phaestus. — In *Ausonia*, III, 1908, pp. 255-302 (5 pls.; 19 figs.), L. PERNIER discusses at length the disk from Phaestus (*A.J.A.* XIII, pp. 78 and 500), and the significance and grouping of the signs. In *Sitzb. Berl. Akad.* XLI, 1909, pp. 1022-1029, E. MEYER argues in opposition to Pernier that the writing on the disk runs from the outer edge to the centre. He thinks it the work of the Philistines, but believes with Pernier that some of the characters show Cretan influence.

The Inscription from Aegiale. — In *R. Ét. Gr.* XXII, 1909, pp. 241-250, T. REINACH discusses the provisions of the mortgage in the inscription from Aegiale (lines 10-14), and the proper restoration of the number in line 14 (see *A.J.A.* XII, p. 360; XIII, p. 501).

The Laws of Gortyns. — In *Abh. Sächs. Ges.* XXVII, 1909, pp. 390-420 (No. 11), HERMANN LIPSIIUS discusses various points in the laws of Gortyns, especially the relations of the different classes of the population and the divisions of the people.

Inscriptions from Delphi. — In *Jh. Oest. Arch.* I, XII, 1909, pp. 151-153, W. CRÖNERT discusses eight of the inscriptions found by Pomtow at Delphi and published in *Berl. Phil. W.* 1909, Nos. 5-12. In *B.C.H.* XXXIII, 1909, pp. 440-442, A. D. KERAMOPOULLOS publishes further notes on an inscribed bronze basin found at Delphi (cf. *ibid.* XXXII, 1908, pp. 445-448), and on a second basin published by Perdrizet, *Fouilles de Delphes*, V, p. 70, Fig. 228 b.

The Base of the Charioteer at Delphi. — In *Ath. Mitt.* XXXIV, 1909, pp. 33-60 (3 figs.), A. D. KERAMOPOULLOS gives a revised reading of the erased inscription on the base of the charioteer at Delphi and proposes the following restoration:

Εὐξάμενός με Γέλον ἡο] Γέλας ἀνέθεκε φανάσσ[ον
Δεινομένευσ ἡνιὸς τ]ὸν ἄεξ' εὐόνυμ' Ἀπολλ[ον.

The first line might also be read: *Πυθιονίκα Γέλον με] Γέλας κ.τ.λ.* The phrase *Γέλας ἀνάσσειν* dates the victory in the year 486 B.C. The statue was ready to be set up at the time of Gelo's death (478). It was actually set up by Polyzelus soon after that event and the inscription changed to read as follows:—

Μνήμα Γέλωνος τῇδε Π]ολύζαλος μ' ἀνέθηκε[ε,
Δεινομένευσ ἡνιὸς τ]ὸν ἄεξ' εὐόνυμ' Ἀπολλ[ον.

The delay of eight years is to be explained by the warfare against the Carthaginians. Keramopoulos believes the group to have been the work of Glaucias of Aegina, who made the similar group at Olympia. In *J. Int. Arch. Num.* XI, 1908 (published 1909), pp. 233-235 (fig.), J. SUNDWALL argues that the reading proposed by Keramopoulos is essentially correct. There is, however, no Ξ between the letters read as C and A at the begin-

ning. The horizontal strokes are marks of the tool used in erasing the inscription, as the spacing shows. He also finds no trace of \otimes before the ninth letter, Λ . The last five letters are certainly $\text{ANA}\xi\xi$. He agrees with Pomtow that the inscription began at the left of the second stone of the base, ran across the third, *i.e.* the existing stone, and over the edge of the fourth. Seventeen letters are lost at the beginning.

The Parthenon Treasure Lists. — Three new fragments of the annual lists of offerings and other valuables kept in the Parthenon are published by A. M. WOODWARD in *J.H.S.* XXIX, 1909, pp. 168–191. They are now in the Epigraphical Museum at Athens. All are of Pentelic marble. Although they throw no new light on the history of the stewardship of the treasures, they supply several lacunae in the published lists and give one or two new items. (1) In the old Attic alphabet, with retrograde sigma, parts of lines 7–12 in *I.G.* I, 171, of the year 421 B.C. It confirms the number of $\sigma\tau\acute{\alpha}\chi\upsilon\epsilon\varsigma$ as 12 and gives their weight as 184 drachmas. (2) The left side of *I.G.* II, 2, 665, with parts of 21 lines, leaving a gap between the two stones. Among the items are: the rare object $\acute{\alpha}\nu\alpha\mu\sigma\chi\alpha\lambda\iota\sigma\tau\acute{\eta}\rho$, ornament for securing a garment from slipping off the shoulder; some object with a border, possibly the sacred peplos, which weighed 66 drachmas, 3 obols; an "ointment box" in which were kept the dies, mallets, and anvils ($\chi\alpha\rho\alpha\kappa\tau\acute{\eta}\rho\epsilon\varsigma$, $\sigma\phi\acute{\upsilon}\rho\alpha\iota$, and $\acute{\alpha}\kappa\mu\omicron\nu\iota\sigma\kappa\omicron\iota$) used for striking gold coins; chips of ivory; studs with ornamented heads and other silvered or gilt decorations from the door of the Hecatompedon, date, 385–375 B.C. Other inscriptions for which this supplies missing items are *I.G.* II, 2, 666; 672; 694; 697. (3) Part of a list in columnar form, two columns, with weights in the space between, which belong to items in the right-hand column, date, 375–369 B.C. It supplies gaps, especially in *I.G.* II, 2, 677 and 678, about the two $\theta\upsilon\mu\alpha\tau\acute{\eta}\rho\mu\alpha$ which were stamped with an Alpha and a Beta.

Researches in Athenian and Delian Documents. — In *Klio*, IX, 1909, pp. 304–340, W. S. FERGUSON completes his series of studies in Athenian and Delian inscriptions. He shows (1) that the Athenian Pythais came at irregular intervals down to 94–93 B.C., when it became annual, but that it did not continue after 87–86 B.C. (2) He also discusses the dates at which the ten generals had specific duties assigned them and became civil and military magistrates. (3) He shows, furthermore, that there was at Athens between the time of Sulla and the later aristocratic régime a period of popular influence which must have extended from about 70 B.C. to about 53 B.C. Problems connected with the priests at Delos and the dating of the archon Lysiades are also considered.

Greek Inscriptions from Babylon — In *Klio*, IX, 1909, pp. 352–363, B. HAUSSOULLIER discusses three Greek inscriptions from Babylon. The most important dates from 109 B.C. and records the distribution of prizes in the gymnasium at Babylon.

A Forged Inscription from Cappadocia. — The metrical inscription from Cappadocia published by H. Grégoire in *B.C.H.* XXXIII, 1909, p. 77, No. 65, is a careless copy of the inscription on a leaden $\acute{\alpha}\lambda\tau\acute{\eta}\rho$ found at Eleusis, *I.G.* I, 422, 4. (E. N. DRAGOMIS, *B.C.H.* XXXIII, 1909, pp. 437–438; H. GRÉGOIRE, *ibid.* p. 439.)

Διὰ πάντων and ὁ ἐπινίκιος. — The meaning of $\delta\iota\grave{\alpha}\ \pi\acute{\alpha}\nu\tau\omega\upsilon\alpha\iota$ and $\delta\ \epsilon\pi\nu\iota\kappa\iota\omicron\varsigma$ in inscriptions giving lists of victors in musical contests is discussed by

FRIEDRICH MIE in *Ath. Mitt.* XXXIV, 1909, pp. 1-22. The former was a concluding contest in which all who had taken part in the earlier contests were entered. In the Boeotian musical festivals ὁ ἐπινίκιος (sc. ὕμνος) was also an ἀγὼν διὰ πάντων, or a contest in which all the *agonistae* took part, as is shown by the fact that the victor in it is often the same as the victor in one of the earlier contests.

Inscriptions from Erythrae and Chios.—In *Jh. Oest. Arch.* I. XII, 1909, pp. 126-150 (3 figs.), A. WILHELM discusses two inscriptions in the collection of G. J. Zolotas of Chios published in *Ἀθηνᾶ*, XX, pp. 113 ff.; and an inscription relating to the selling of fish at Eleusis found at the Piraeus and published in *Παλιγγενεσία*, January 11, 1868, and elsewhere.

The Letter of Articon.—In *Jh. Oest. Arch.* I. XII, 1909, pp. 118-126 (fig.), A. WILHELM discusses the letter written on a sheet of lead, published by Latyshev in the *Bulletin de la Commission Impériale archéologique*, X, p. 10. It was found at Olbia and is now in St. Petersburg. He reads, Ἀρτικῶν: τοῖς ἐν οἴκῳ | χαίρειν· ἦν ἐγβάλει· ἐκ τῆς | οἰκίης ὕμ[ας] Μυλλίων· | παρὰ Ἀτά- | κους [εἰ]ς τὸ οἶκημα, | ἦν γὰρ δίδωι, εἰ δὲ μή, | παρὰ Ἀγάθαρκον· εἰς τὰ | παρὰ Κέρδω[ν]ος ἐρίων | τὸ μέρος κομισάσθω. He dates it in the fourth century B.C.

Two Cypriote Inscriptions.—In *Sitzb. Sächs. Ges.* LXI, 1909, i, pp. 3-13 (pl.), R. MEISTER discusses two Cypriote inscriptions first published in *J.H.S.* XII, 1891, p. 192, No. 46 and p. 320. He transliterates and supplements the first: Χαρίνω τῷ Νικά(ν)θεος κᾰπός | ἡμι κε[ερός] | κὰ ἄσκα- [φος]. The bare field belonged to Charinus, the improvements to the tenant. The second inscription may be transliterated: Τιμοφάνακτος τῷ Τιμάσειν (or -ην) ἡμί. The discussion is concerned chiefly with points of dialect and grammar.

A Cypriote Ostrakon.—In *Abh. Sächs. Ges.* XXVII (No. 9), 1909, pp. 302-332 (2 pls.), RICHARD MEISTER publishes and discusses the ostrakon published by Murray, Smith, and Walters in *Excavations in Cyprus* (London, 1900), p. 3, fig. 2. It comes from a sanctuary of Zeus, at Salamis, Cyprus, whose epithet Epikoinios is derived from his granting of oracles. The text, transliterated, is given as follows: *Front.* I. φιλέω ζάλωμα | τὸδε κά τ' ἰλέω (or ἰλήω) |, ἐχθρῶς δὲ | πυρὶ παρίω. | σῶζω ἀμίραφι ρό|ρω | μικῷ βωσὶ νᾰ|μα φαδί, ὕ φῆρι | νομύσιφα ὕ πί|ραφι. ἡμί ἀρα|τὸς δοιᾰρῶ, | σίς μαίε[τα]ι jaṛā II. τέλος | σεῶ. | ἀπανδάω | νήλιτος | ἰ(ν)χῶσις ρόρω | μικῷ. III. Διφὶ jaḡías | ἰ(μ)φορὰς τὰ κατάργματα (numeral). IV. θύμα | σεῶι | κάδως (numeral) θύρω. | ἰ(μ)φοροι τοὶ κάδοι (numeral). *Back.* V. κάδως τὸ φέτος | ἄματι ἄματι (numeral). VI. τῷ φέτος τὰ ἄματα (numeral). VII. φοίνω κάδως τὸ φέτος ἄματι ἄματι. | λάχως ἰ(ν) δεκάτοι πλότει (numeral). The translation is: I. I love this zeal and am gracious, but my enemies I strike with lightning. I preserve by means of the trenches of the little stream for the cattle the sweet water, in spring the pasturage for the welfare. I am moved by the prayer of the doubting one who asks supplicating. II. Decision of the god: I forbid absolutely the filling up of the little stream. III. For Zeus as worthy offerings the first fruits (numeral). IV. As a sacrifice to the god I offer jars (numeral). As tax the jars (numeral). V. Jars during the year from day to day (numeral). VI. In the course of the year through the days (numeral). VII. Jars of wine during the year from day to day. The receipts on the tenth tablet (numeral). The text is written on both sides of the sherd, and has to do with the

response given by the god to some one who asked about filling in a water course. Grammatical and phonetic remarks are a large part of the monograph.

The Minaeo-Greek Inscription of Delos.—In *R. Sém.* XVII, 1909, pp. 402–406, J. HALÉVY publishes again the inscription given in *C. R. Acad. Insc.* 1908, pp. 546–560, and gives a new translation and commentary. (See *A.J.A.* XIII, pp. 354–355.)

Frosopographical Notes.—In *Klio*, IX, 1909, pp. 365–371, J. SUNDWALL publishes notes on the *prosopographia* of Attica.

Epigraphic Bulletin.—In *R. Ét. Gr.* XXII, 1909, pp. 145–195, 306–335, A. J. REINACH compiles a summary of the books and articles concerned with Greek inscriptions published in 1908.

COINS

Early Coinage.—The publication in French of the lectures of I. N. SVORONOS on early money is continued in *R. Belge Num.* 1909, pp. 389–406 (ill.), where the “anchors” of Cyprus, the “fishes” of Olbia, and the “hams” of Nîmes, are discussed. The English translation of the same papers (from the French version) is continued in *A. J. Num.* XLIII, 1908–09, pp. 93–101, 141–148 (ill.), with some added notes by the editor.

Notes on Greek Coins.—In *J. Int. Arch. Num.* XI, 1908 (published 1909), pp. 243–248 (2 figs.), K. REGLING discusses a late Athenian tetradrachma with the name Aesillas; a copper coin similar to one published by Svoronos (*ibid.* IX, p. 237) inscribed *τετράδραχμον*; and the tetradrachmas of Cleopatra VII.

Athenian Tetradrachmas from Zaroba.—In *J. Int. Arch. Num.* XI, 1908 (published 1909), pp. 236–240, I. N. SVORONOS describes 228 later Athenian tetradrachmas found at Zaroba, Macedonia, in 1898. There were more than one thousand in the hoard, some of which are now in Vienna and others in Constantinople.

A New Corinthian Stater.—In *J. Int. Arch. Num.* XI, 1908 (published 1909), p. 214 (2 figs.), I. N. SVORONOS publishes a new Corinthian stater in which the protection for the neck below Athena's helmet has the appearance of scale armor. Two copies are known, one in Athens and one in Budapest.

Autonomous Coinage of Aenus.—A chronological study of the autonomous coinage of Aenus, in both silver and copper, is given by H. von FRITZE in *Nomisma*, IV, 1909, pp. 16–32 (2 pls.).

The Medallions of Abukir.—In *J. Int. Arch. Num.* X, 1907 (published 1909), pp. 369–371 (7 pls.), I. N. SVORONOS changes his opinion about the gold medallions from Abukir (see *A.J.A.* VIII, p. 468; XI, pp. 78 and 451; XII, p. 214; XIII, p. 192) and now believes them genuine. A translation of the article appears in *Riv. Ital. Num.* XXII, 1909, pp. 515–518; and a summary of it in *Mb. Num. Ges. Wien*, VIII, 1909, p. 56.

Facing Heads on Greek Coins.—In *A. J. Num.* XLIII, pp. 113–131 (4 pls.), Miss AGNES BALDWIN arranges in chronological sequence 363 Greek coins upon which are heads in full face, and makes certain deductions therefrom, especially that the representation of heads on coins in full face was by no means confined to the fourth century, but extended from the

beginnings of Greek coinage down through the first century, when independent Greek issues ceased.

Coinage of Antigonus I and Demetrius Poliorcetes. — A much-needed chronological synopsis of the coinage of Antigonus I and Demetrius Poliorcetes, with plate, is given by CHARLES T. SELTMAN in *Num. Chron.* 1909, pp. 264-273.

Nymphs and Graces on Greek and Roman Coins. — In *J. Int. Arch. Num.* XI, 1908 (published 1909), pp. 1-213 (12 pls.), F. IMHOOF-BLUMER discusses the ancient coins upon which Nymphs and Graces are represented, recording 527 of the former and 24 of the latter.

Review of Numismatic Literature. — The "Jahresberichte über die numismatische Litteratur" for 1905 and 1906, published in *Z. Num.* XXVII, deserves especial mention. The portion (pp. 3-80) on ancient coinage is by K. REGLING.

GENERAL AND MISCELLANEOUS

The Date of the Cretan-Mycenaean Culture. — In his *Zeit und Dauer der Kretisch-Mykenischen Kultur* (Leipzig und Berlin, 1909, Teubner. 107 pp. M. 3), D. FIMMEN examines the evidence for dating the so-called Cretan-Mycenaean civilization, drawing up a synchronistic table as follows: (1) Before 3000 B.C. the first two dynasties of Egypt; the neolithic culture of Cnossus and Phaestus, as well as that of Dimini, and Sesklo, of Phocis and Boeotia. (2) 3000-2000 B.C., the third to the eleventh dynasties in Egypt; Early Minoan periods I, II, and III at Cnossus; the early culture of the Cyclades; Orchomenus II; and the earliest remains at Tiryns; Troy I and II; the oldest graves of Cyprus. (3) 2000-1700 B.C., the twelfth and thirteenth dynasties of Egypt; Middle Minoan periods I and II; the later culture of the Cyclades; Phylakopi I and II; early remains at Aphidna, Aegina, and Argos. (4) 1700-1550, the Hyksos period, and the beginning of the eighteenth dynasty in Egypt; Middle Minoan III and Late Minoan I; the shaft graves at Mycenae. (5) 1550-1400 B.C., the remainder of the eighteenth dynasty in Egypt; Late Minoan II at Cnossus; Phylakopi III; the palaces of Mycenae and Tiryns. (6) 1400-1250 B.C., Amenophis III and IV, and the nineteenth dynasty; Late Minoan III; late Mycenaean styles at Phylakopi, as well as at Tiryns and Mycenae; Troy VI and VII, 1; Ialysus; Enkomi in Cyprus. (7) 1250 and later, the twentieth dynasty in Egypt; geometric decoration; local Mycenaean vases of Cyprus.

The Discoveries in Crete and their Relation to the History of Egypt and Palestine. — In *S. Bibl. Arch.* XXXI, 1909, pp. 221-238 (2 pls.), H. R. HALL continues his discussion of the discoveries in Crete and their relation to the history of Egypt and Palestine (see *A.J.A.* XIII, p. 503). Among other points, he discusses: (1) the theory of the Aegean origin of the spiral motive, giving evidence to show that the Egyptians imported it from the Aegean region about the end of the Old Kingdom; (2) the evidence that the Cretans borrowed from Egypt the art of glazing pottery, but gave the Egyptians in turn the idea of polychrome pottery; (3) the origin and affiliations of the Minoan method of writing; (4) the relation of Cretan civilization to that of Cyprus; (5) the theory that the Philistines were originally Aegeans.

Cretan Palaces and the Aegean Civilization.— In *B.S.A.* XIV (Session 1907-1908), pp. 343-422 (21 figs.), D. MACKENZIE presents the fourth part of his discussion of Cretan palaces. He finds that no part of the Mediterranean region shows the exclusive use of either the round or the rectangular hut from the very beginning. In Sardinia round dwellings only are found, but tombs are rectangular; in Crete only rectangular dwellings have been found, but round tombs are common. The round hut originates among nomads, and nomadic habits cannot persist on the islands and coasts of the Mediterranean. In the Danube valley the round hut is of eastern origin. The Nordic house and the central-hearth house of the Balkan Peninsula are cognate Mediterranean types, but neither is derived from the other. Prehistoric rectangular dwellings in the eastern Mediterranean region are discussed in detail. An important matter is the central position of the hearth. This involves isolation of the room containing the hearth, and when the addition of other rooms causes draughts to blow the smoke about the hearth has to be moved. In Crete and the islands of the Aegean, a continuous fire was not needed, and the portable hearth was introduced very early. This made the avoidance of draughts unnecessary and led eventually to the elaborate arrangement of connecting rooms seen in the great Cretan palaces. Thessaly developed later than Crete. In some *b'ut* and *b'en* houses at Dimini and Sesklo the hearth was moved to avoid draughts. The isolated megaron of the Mycenaean palaces of the Greek mainland is a reversion to the type of the primitive central-hearth hut. The elliptical house at Chamaizy is a sporadic development from the rectangular house. Throughout this article Noack's views are criticised freely.

The Bull-ring in Crete.— In *Ath. Mitt.* XXXIV, 1909, pp. 85-99 (pl.; 13 figs.), A. REICHEL collects and discusses the illustrations in Mycenaean art of acrobats performing feats of strength and skill with bulls. He suggests that these spectacles may have had a religious significance, citing the connection of bulls with the cults of Zeus and Poseidon in later times.

A Bird Cult in Egypt and in Crete.— In *Annals of Archaeology and Anthropology*, II, 1909, pp. 49-51, P. E. NEWBERRY points out the connection of the cults of the Double Axe and of the *Wr*-bird in the Old Kingdom in Egypt and similar cults depicted on the sarcophagus from Hagia Triada in Crete.

The Early History of the Argive Heraeum.— The existence of a beehive tomb at the Heraeum proves that there was a Mycenaean stronghold in the immediate vicinity. This is to be sought on the highest terrace of the Heraeum hill, above that occupied by the old temple. This has not been excavated, though there are remains of house walls in the neighborhood, and the place is strewn with Mycenaean sherds. The fortification walls were probably used later as building material. The fortress was destroyed near the close of the Mycenaean period, and the sanctuary was founded by the conquerors. The stories of Io and of the Danaids, which are closely connected with the Heraeum, perhaps originated in this Mycenaean settlement. (PAUL FRIEDLÄNDER, *Ath. Mitt.* XXXIV, 1909, pp. 69-79.)

The Beehive Tombs at Kakovatos.— The finds in the three beehive tombs described by Dörpfeld (*Ath. Mitt.* XXXIII, 1908, pp. 295 ff.; cf. *A.J.A.* XIII, 1909, p. 79), are published by K. MÜLLER in *Ath. Mitt.* XXXIV, 1909, pp. 269-328 (13 pls.; 17 figs.). Among the gold objects a pendant in the

form of a toad is most noteworthy. Numerous fragments of amber were found. Like that discovered in the shaft graves at Mycenae, it came from the Baltic. The pottery consists chiefly of the remains of large amphoras (Figs. 2 and 3) more or less fragmentary (some twenty-two in all). These vases find closer parallels at Mycenae and elsewhere on the mainland than in Crete. In style they belong to about the beginning of the second Late Minoan period. The contents of the tombs as a whole point to a slightly later date than that of the shaft graves at Mycenae.

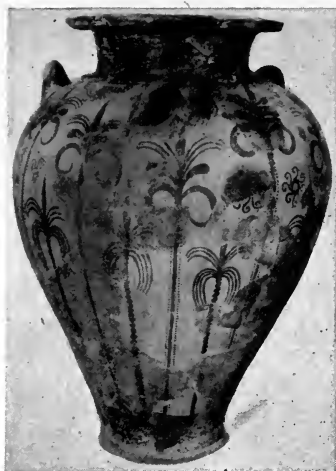


FIGURE 2.—VASE FROM KAKOVATOS.

The Fortress of Kalydona.—The fortress of Kalydona or *Gyphtokastro* to the east of Kakovatos is described by H. G. PRINGSHEIM in *Ath. Mitt.* XXXIV, 1909, pp. 179–182. It is situated on a steep rock, 7 km. from the sea, and contains a lower and an upper citadel. Though the evidence of the walls (small slabs of limestone laid rather carefully without mortar) and the vase fragments is inconclusive, he believes the fortress to be pre-Dorian.

The Pelargicon.—In *Das Pelargikon, Untersuchungen zur ältesten Befestigung der Akropolis von Athen* (Strassburg, 1909, J. H. E. Heitz. 42 pp.; 6 pls.) A. KÖSTER argues that the oldest walls of the Acropolis were built in the second millennium B.C. They ran around the upper part of the rock and had their principal entrance on the north side, a little to the east of the Erechtheum, and another entrance at the northwest corner. There was no entrance on the west side. This was the Pelargicon. Towards the end of the second millennium an enlargement was made to the west and the Nine Gates built. The name Pelargicon was then transferred to this wall. In the time of Pisistratus the highest of these gates was strongly fortified, but the walls were destroyed at the downfall of the tyrants. The writer also discusses the walls of Cimon.

The Homeric Shield with One Handle.—In *Jh. Oest. Arch.* I. XII, 1909, pp. 1–70 (45 figs.), W. HELBIG traces the history of the Homeric round shield with one handle in Mesopotamia, Syria, Egypt, and Greece, including Crete, down through the geometric period into classical times.

Parallels between Greek Art and Greek Poetry.—In *Jb. Kl. Alt.* XXIII, 1909, pp. 681–712, F. WINTER points out resemblances between Greek art and Greek poetry. In Homer various passages may be illustrated by works of Cretan-Mycenaean art; while in other passages the poet seems to have had in mind some painted scene. So, too, the lyric poets, Pindar, and the great dramatists reflect the spirit of contemporary art. Compare, for example, with Pindar the sculptures of the Temple of Zeus at Olympia, and with Sophocles the sculptures of the Parthenon.

Delphica.—In *B.C.H.* XXXIII, 1909, pp. 201–237 (3 pls.; 9 figs.; cf. p. 436), G. KARO discusses (1) the Treasuries of Corinth and Acanthus.

Some remains of the foundation of the former exist east of the sacred way, opposite the southeast end of the great supporting wall. Some walls lying to the north of the path which leads past this foundation to an eastern postern belong to the

Treasury of Acanthus. The Treasury of Clazomenae is perhaps to be identified with the archaic foundation to the east of the tripods of Gela.

(2) The *Ion* of Euripides and the Treasury of the Cnidians. In the first chorus of the *Ion* the words ἀγνυάτιδες θεραπείαι and διδύμων προσώπων καλλιβλέφαρον φῶς (ll. 185 ff.) refer to the caryatids of the Cnidian or Siphnian Treasury. The group of Heracles slaying the hydra (l. 190) is to be identified with that of Tisagoras (Paus. X, 18, 6). The gigantomachy described in lines 206 ff. is the north frieze of the Cnidian Treasury.

(3) The Monument of Aegospotami. The identification of the rectangular niche on the north side of the sacred way with the dedication of Lysander after Aegospotami is wrong. These statues possibly stood on the south side of the road immediately next to the gate.

The Treasury of the Cnidians at Delphi.—An examination of Homolle's restoration of the Treasury of the Cnidians at Delphi shows that the gable is too broad to be brought into connection with the foundations and the dedicatory inscription on the step. The slabs of the frieze are to be divided into two groups on stylistic grounds. The remains, therefore, belong to three separate buildings: (1) The Treasury of the Cnidians. Its dimensions were approximately 3.50 m. by 7.80 m. The frieze was composed of battle scenes on the ends, the gigantomachy and the assembly of the gods on the sides. There is not room for the caryatids between the antae; they must have stood in front of the latter. (2) The Treasury of the Siphnians (4 m. by 7 m.). On one of the sides was the rape of the Leucippidae, on one of the ends the slaying of Tityus by Apollo and Artemis.



FIGURE 3. — VASE FROM KAKOVATOS.

The figure of a goddess descending from a chariot, explained by Poulsen as Aphrodite putting on her necklace, is Artemis aiming an arrow at the monster whose head is preserved. (3) A building with a tympanum 5.78 m. wide. To this belong the pedimental sculptures, the cornice, and perhaps the sima and acroteria. To it is perhaps also to be assigned the second pair of caryatids, the greater width of the façade allowing them to be placed between antae. (R. HEBERDEY, *Ath. Mitt.* XXXIV, 1909, pp. 145-166; pl.; 2 figs.)

The Offering of Rhodopis at Delphi. — In *J. Int. Arch. Num.* X, 1907 (published 1909), pp. 287-294 (3 figs.), G. KARO argues that two stones of the base which supported the spits dedicated by Rhodopis at Delphi (Hdt. II, 134-135) are still preserved; that there was a standing female figure with the spits on end about it. *Ibid.* p. 367, he withdraws this conclusion and believes that these blocks formed part of the base of a bull in a field of grain, perhaps of the bull of the Corcyraeans.

The Monthly Offerings at Olympia. — In *Klio*, IX, 1909, pp. 291-303 (plan), L. WENIGER shows that the seventy altars at which monthly offerings were made at Olympia were divided into two sections of fifteen different groups each. Two processions started from the Prytaneum, one visiting the altars chiefly within the precinct, and the other those chiefly outside of it. The route followed by each is given.

Handbook of Greek Archaeology. — In their *Greek Archaeology*, H. N. FOWLER and J. R. WHEELER publish a comprehensive survey of the whole subject. After a chapter on the study and progress of archaeology in modern times they take up in turn Prehellenic Greece; architecture (by Stevens); sculpture; terra-cottas; metal work; coins; vases; and painting and mosaic. The book is much fuller than any manual hitherto published and will serve as a complete introduction to the subject. A bibliography is appended. (*Greek Archaeology*, by Harold North Fowler and James Rignall Wheeler, with the collaboration of Gorham Phillips Stevens. New York, 1909, American Book Company. 559 pp.; 412 figs. \$2.00.)

Greek Lands and Letters. — In *Greek Lands and Letters* Professor and Mrs. ALLINSON publish a book intended for the lover of Greece and Greek literature. Topography, archaeology, and the Greek authors are drawn upon equally, one to illustrate the other. The book deals almost wholly with Greece proper, that is, with Attica, Central Greece, and the Peloponnesus, although casual references to the islands and the coast of Asia Minor are not lacking. The poetical translations of Greek authors are a notable feature. (*Greek Lands and Letters*, by F. G. and A. C. E. Allinson. Boston, 1909, Houghton Mifflin Company. xvi, 472 pp.; 4 maps; 16 pls. 8vo. \$2.50 net.)

Greek Terra-cotta Figurines. — In his *Diphilos et les modeleurs de terres-cuites grecques* (Paris, 1909, H. Laurens. 128 pp.; 148 figs.), E. POTTIER gives a concise account of Greek terra-cotta statuettes. He discusses their origin, object, and date; the development of the industry in Asia Minor and in Greece; its development and decline in Africa, Sicily, and Italy. The book is abundantly illustrated from the collection in the Louvre, which numbers about 4000 specimens, and to which it may serve as a guide. The name Diphilos is the most frequent of the signatures of coroplasts found at Myrina.

Terra-cottas from Samothrace.— In *Ath. Mitt.* XXXIV, 1909, pp. 23-28, C. FREDRICH publishes nine terra-cotta heads from Samothrace, now in the museum at Bonn, and gives a résumé of the history of the island from 769 A.D. down to the present day.

Two Hellenistic Bronze Vessels.— The two opposed tendencies in Hellenistic art, the Attic-Alexandrian, standing for a sharp distinction between conventional decorative design and naturalistic representative art, and the Asiatic (Ionian)-Roman, in which the two elements are combined, are discussed by A. HEKLER in his publication of two very beautiful inlaid copper and bronze vessels at Budapest, which were found at Egyed, Hungary, in 1831. They represent the high-water mark of Alexandrian toreutic, about the middle of the third century B.C., and have a quite different artistic feeling from the Augustan Roman work of the Hildesheim and Boscoreale treasures. The picture designs, which are discussed by F. W. v. BISSING, a Nile scene of plant and animal life, a row of Egyptian gods and a ring of Egyptian crowns or head ornaments show the hand of a most skilful Greek artist dealing with subjects long familiar in Egyptian art. (*Jb. Arch. I.* XXIV, 1909, pp. 28-46; 2 pls.; 7 figs.)

The Universities of Ancient Greece.— In his *Universities of Ancient Greece* (New York, 1909, Charles Scribner's Sons. x, 367 pp.; 8vo; \$1.50), J. W. H. WALDEN discusses higher education in the Greek world during the time of the Roman empire. After sketching the subject during the fifth and fourth centuries B.C. at Athens and then during Macedonian times, he discusses education and the state; the establishment of university education in various places; its history and decline; the appointment and number of professors, their pay and position in society; the sophist's teaching, his methods and public displays; school-houses, holidays, etc.; the training of the sophist, his student days and later life.

Cults of the Greek States.— The fifth and concluding volume of Dr. Farnell's *Cults of the Greek States* contains chapters (with references and registers as in former volumes), on Cults of Hermes, Cult-Monuments of Hermes, The Ideal of Hermes, Cults of Dionysos, Dionysiac Ritual, Cult-Monuments of Dionysos, Ideal Dionysiac Types, Cults of Hestia, Cults of Hephaistos, Cults of Ares, and Minor Cults (Forces of Nature, Helios, etc., Rivers and Springs, Nymphs, Horae and Charites, Pan, Muses, *Ἐρινύες*, etc., the *Μαῖαί*, Personifications of abstract ideas). The method is like that adopted in the earlier volumes, giving space and opportunity for many illuminating remarks in addition to the systematic treatment of the main themes. The illustrations include two coin-plates. There is an index to the entire work. (L. R. FARNELL, *The Cults of the Greek States*, in five volumes, Vol. V, Oxford, 1909, Clarendon Press [London, New York, Edinburgh, Toronto, Melbourne, Henry Frowde]. xii, 496 pp.; 59 pls. 8vo. 18s. 6d. net.)

The Pythagorean Prohibition of Eating Beans.— In *Memnon*, III, 1909, pp. 93-96, W. SCHULTZ discusses the Pythagorean avoidance of beans, and comes to the conclusion that this was due to a philosophic conception of the universe of which the bean was chosen as the mystical symbol.

The Island Psyttaleia.— In *Ἐφ. Ἀρχ.* 1909, cols. 45-56, P. D. RHEDI-APDES defends the traditional identification of the modern Lypsokoutala just outside the entrance of the straits of Salamis, as the ancient Psyttaleia around which the battle of Salamis raged, citing abundant evidence

against Beloch's contention (*Klio*, 1908, pp. 477 ff.; *A.J.A.* 1909, p. 218), that Psyttaleia was the island well within the straits, now known as St. George.

Thasos. — The present condition of the island of Thasos (see *A.J.A.* XIII, pp. 84, 506; XIV, p. 112), with special reference to the ancient remains, was thoroughly studied, so far as this can be done without excavation by J. FR. BAKER-PENOYRE in the summer of 1907, and the results, topographical and general, are published with an abundance of maps, plans, and other illustrations in *J.H.S.* XXIX, 1909, pp. 202-251 (10 pls.; 25 figs.). A few notes are added on the inscriptions, which were published earlier (*ibid.* pp. 91-102; *A.J.A.* XIII, 1909, p. 358). Among the ancient works still standing or to be traced are: the city walls and acropolis of the city of Thasos on the northern coast, some parts of the acropolis being older than the sixth century; the marble quarries near the southeastern corner of the island, where two monolithic columns and other worked stones are lying abandoned; and a number of Hellenic towers dotted about the island, some of which were lighthouses, some watch towers and forts to guard the coast and the valleys running inland, and others castles of refuge in case of invasion. A quaint little shrine of Pan, made from a natural grotto and adorned with simple carving on the rock, probably in the fourth century B.C.; a fine fifth-century funeral banquet relief, and a huge apotropaic eyes-and-nose cut on the town wall, are among the objects of interest. The island is very mountainous and thickly wooded. Many centuries of hopeless insecurity have so reduced the inhabitants in numbers and condition that they now attempt little but a primitive agriculture and fishing, the best farms being those owned by the communities of Mount Athos; only a small fraction of the area of the ancient capital is inhabited; and the great mineral resources of the island are untouched except in one spot and by a foreign company. Both the land and the surrounding water are of extraordinary beauty, and it is to be hoped that they may again become the home of a vigorous life.

The Greek Garden. — In *Ath. Mitt.* XXXIV, 1909, pp. 100-144, MARIE GOTHEIN gives a comprehensive survey, based on literary sources, of the gardens, groves, and parks in the Greek world from the age of Homer down to Byzantine times.

ITALY

ARCHITECTURE

The Domed Tomb at Vetulonia. — In *Jh. Oest. Arch. I.* XII, 1909, pp. 71-74 (fig.), J. DURM discusses the vault of the tomb at Vetulonia and shows that the practice of constructing a vault with pendentives over a square chamber must be an invention of the seventh century B.C.

Documents relating to the Septizonium. — In *Boll. Arte*, III, 1909, pp. 253-269 (2 pls.; 6 figs.), A. BARTOLI publishes the references to the Septizonium of Septimius Severus in ancient and mediaeval literature, as well as a list of the drawings and restorations of it made during the fifteenth and sixteenth centuries. Three sketches of the monument by Martin Heemskerck made between 1532 and 1536 and not previously published are reproduced.

Hadrian as a Builder. — In *Rend. Acc. Lincei*, XVIII, 1909, pp. 172-177, T. RIVOIRA lists a number of structures built or rebuilt by Hadrian, and in discussing the arched roofs of the Pantheon, Hadrian's Villa Tiburtina, and

the Temple of Venus and Roma at Rome, points to the fact that this way of building roofs was the precursor of the Lombard and Gothic arches. The article forcibly contrasts Greek and Roman architecture.

The Porta Aurea of Spalato.—In discussing the decoration of the Porta Aurea at Spalato, once the north gate of Diocletian's Illyrian retreat, which is usually cited as the type of the false arcade, B. SCHULZ shows that the scheme is rather vertical than horizontal, owing to the superimposed niches of the middle and upper parts of the wall. The artistic feeling by which the ornament is concentrated and made to contrast with blank spaces, is characteristic of the architecture at the close of any long-continued period of artistic development. (*Jb. Arch. I. XXIV, 1909, pp. 46-52; 3 figs.*)

Notes on Vitruvius.—In *Harvard Studies in Classical Philology*, XXI, 1909, pp. 1-22, M. H. MORGAN publishes 'Critical and Explanatory Notes on Vitruvius.' The *viae* (93, 1 ff. = 4, 3, 6) are explained as the intervals between the *guttae*. The difference between *albariis* and *tectoriis* (6, 7, 3, = 149, 24) is explained as that between enriched and plain stucco. Other notes are chiefly philological.

SCULPTURE

The Ara Pacis.—In *Abh. Sächs. Ges. XXVII* (No. 26), 1909, pp. 899-944 (7 pls.; 5 figs.), F. STUDNICZKA discusses the new fragments of the Ara Pacis and the conclusions to be drawn from them. Some interesting results are: The identification of Claudius in the flamen formerly called Augustus by F. von Duhn, on one of the reliefs walled into the back of the Villa Medici, none of which belong to the Ara Pacis; the dating of the procession represented (January 9, B.C.); the identification of the emperor's nieces, of Tiberius and his wife, of Lucius Caesar, of the pontifex (whose name cannot be given, but who is a *promagister*, the Pontifex Maximus being Augustus himself), of Augustus, and of several persons among his immediate attendants. The sacrifice to the Penates, the place of the fragment with the *ficus*, the restoration of the relief with the fig tree, the Tellus relief, the coins connected with it, the fragments of the Roma, the restoration of the Roma relief, are discussed in more or less detail.

The Antinous of Torre del Padiglione.—In *Ausonia*, III, 1908, pp. 3-17 (3 figs.), G. E. RIZZO discusses the fine relief representing Antinous, found at Torre del Padiglione in 1907 (*A.J.A. XIII, p. 93*).

The Great Gods of Samothrace on a Roman Relief.—In *Ausonia*, III, 1908, pp. 79-90 (fig.), R. PETTAZZONI publishes a relief in the Lateran Museum originally representing the busts of four divinities. The head of one is now missing. They are the *μεγάλοι θεοί* of Samothrace, known from a scholium to Apol. Rhod. *Argon.* I, 917, as *Axieros* (Demeter), *Axiokersos* (Hades), *Axiokersa* (Persephone), and *Kadmilos* (Hermes). They were also identified with the Penates. The slab was used as a lintel to the tomb of the Haterii, probably by a member of the family who had been initiated into the mysteries of the Cabiri. It dates from about 100 A.D.

The Marble Base from the Villa Patrizi.—In *Ausonia*, III, 1908, pp. 235-254 (3 pls.; 14 figs.), G. CULTRERA discusses the marble base found with many small fragments in the Villa Patrizi, and now in the Museo delle Terme. The monument consisted of floral decorations and figures and seems to have borne some resemblance to the *tropaeum* from

Adamklissi (DURM, *Baukunst der Etr. und Römer*, 2d ed., p. 734, fig. 805), but the object for which it was intended is not clear.

The Classical Sculptures of the Villa d' Este.—In *Archaeologia*, LXI, 1908, pp. 219–256 (10 pls.; fig.), T. ASHBY discusses the classical sculptures once in the Villa d' Este at Tivoli, and gives their present whereabouts so far as they are known.

Gallic Funerary Stelae in Liguria.—In *R. Arch.* XIV, 1909, pp. 52–54 (3 figs.), H. HUBERT publishes two stelae found in Liguria. One, now in the Museo Civico at Genoa, is surmounted by a male head and bears the inscription *Mezunemusus* in early Greek letters. The other is not only surmounted by a head, but the front represents in rude relief the rest of a nude belted man, bearing an axe, two darts, and a dagger. A few other similar stelae are known. The weapons, etc., are Gallic, and the stelae doubtless marked the graves of Gauls.

VASES

Apulian Vases.—The Reimers vase collection in Hamburg contains more than fifty funeral vases of Apulian ware, chiefly from the district of Bari, which have designs in white, yellow, and red paint, and incised lines, over a black or blackish glaze, imitating metal. They are distinguished from Campanian vases by a strip of unglazed clay surface just above the foot. The decoration consists of network, lines, dots, garlands of foliage and flowers, with objects of still life, animals and heads, but seldom a full figure. They form a class called by Lenormant Gnathia ware, from the town of Egnazia, on the coast between Monopoli and Fasano, but the place of manufacture is uncertain. They date from the end of the fourth to the second century B.C. These and similar vases show an active trade and artistic intercourse between Apulia and Egypt and Crete. (R. PAGENSTECHE, *Arch. Anz.* 1909, cols. 1–18; pl.; 4 figs.)

Faliscan Vases.—In the Reimers collection at Hamburg are some forty or fifty Faliscan vases, many of them in black glaze with incised decoration in imitation of metal work. Whole figures are here common, and several features suggest the influence of Cretan-Cyprian or Phoenician metal ware. A curious cantharus with handles remotely resembling mourning figures and with two Pyrrhic dancers in the incised ornament is reproduced. One of the undecorated pithoi bears a graffito identical with that on a Capena olla, which is interpreted as *Sex[tus] Sent[ius]* or *Sex[t] Sent[i]*. (R. BALLHEIMER, *Arch. Anz.* 1909, cols. 19–29; 3 figs.)

Arretine Moulds in New York.—In *B. Metr. Mus.* IV, 1909, pp. 124–130 (5 figs.), E. R. describes the three Arretine moulds acquired by the Metropolitan Museum in 1908 (see *A.J.A.* XIII, p. 375). One is a cover, 19.6 cm. in diameter, decorated with four masks of satyrs and festoons of grapevine. The other two are very beautiful moulds for bowls, one (22.2 cm. in diameter) adorned on each side with two winged maidens approaching an altar; the other (22.5 cm. in diameter) with a banquet scene. The writer also publishes the remarkable gold ear-ring in the form of a siren of the early part of the fifth century, and the three Tanagra statuettes, also acquired in 1908. Of the latter the most interesting (24.6 cm. high) represents a boy seated on a rock, and holding a small jug in his right hand.

INSCRIPTIONS

Venetic and Lepontian Inscriptions.—In *Skifter utgifna af K. Humanistiska Vetenskaps-Samfundet i Uppsala*, XIII, 1909, pp. 1-33, O. A. DANIELSSON discusses the Venetic inscription on a bronze vessel found at Canevoï in the eighteenth century and now lost (cf. E. Lattes in *Rendiconti del R. Istituto Lombardo di scienze e lettere*, Ser. II, Vol. 34, 1901, pp. 1131 ff.). The last word *ecupetaris* probably indicates the object dedicated; the other words are proper names in the dative case which in Latin would be, *Ennoni, Ont(e)i, Appio, Selbo* († *Selbo*) *Andeticis*. The inscription dates from about 200 B.C. The writer also discusses at length the Lepontian inscriptions, which are chiefly proper names. He concludes that the language was Ligurian strongly influenced by Celtic from at least 250 B.C. on.

The Syrian Sanctuary of the Lucus Furrinae.—In *Mél. Arch. Hist.* XXIX, 1909, pp. 239-268 (3 figs.), P. GAUCKLER discusses the inscriptions found during the recent excavations and at previous times in the sanctuary of the Lucus Furrinae on the Janiculum, and concludes that the sanctuary was sacred to the Heliopolitan couple Jupiter Heliopolitanus and Venus Caelestis, with whom the Sun-god was associated, forming a triad.

An Inscribed Fibula.—In *Ausonia*, III, 1908, pp. 49-54 (2 figs.), E. BRIZIO publishes a bronze fibula, found at Petrignano in the province of Parma a few years ago, bearing the word *AVCISSA*. He records seventeen others, and a possible eighteenth, so inscribed. The name is that of the maker, who probably lived in the second century A.D.

The Dacian Iron Works.—In *Klio*, IX, 1909, pp. 375-376, G. TÉGLAS publishes an inscription of the time of Caracalla found at Alsó Telek, 8 km. south of Vajdahunyad in 1903, and of interest in connection with the administration of the Dacian iron works. It reads *Numini | Domini n(ostri) | M. Aur. Anton(i)n(i) Pii Fel(icis) Aug(usti) | G(aius) Gaur(ius) Gauri(anus) sacerd(os) col(oniae) | Apul(ensis) et Fl(avius) Sotericus | aug(ur) col(oniae) Sarm(izegetusae) cond(uctores) | ferrar(iarum)*.

Latin Inscriptions in Geneva.—In *M. Inst. Gen.* XIX, 1909, pp. 151-361 (168 figs.), E. DUNANT publishes in facsimile with transliteration and comment 92 Latin inscriptions in the Epigraphical Museum at Geneva; also 52 architectural fragments and pieces of sculpture in the same collection. In *Eranos*, IX, 1909, pp. 129-136, V. LUNDSTRÖM discusses ten of the inscriptions.

An Epigraphic Manuscript of Foucault.—In *C. R. Acad. Insc.* 1909, pp. 269-277, M. BESNIER shows that one of the two manuscripts containing Latin inscriptions lent by Nicholas Foucault to Graevius in 1701 is in the library of the Duke of Devonshire at Chatsworth.

Epigraphic Bulletin.—In their review of epigraphic publications relating to Roman antiquity for January-April, 1909 (*R. Arch.* XIII, 1909, pp. 436-456), R. CAGNAT and M. BESNIER give the text of 90 inscriptions (13 of which are in Greek) and notes on publications relating to epigraphy. *Ibid.* XIV, 1909, pp. 319-332, the review for May-August, contains the text of 145 inscriptions (three of which are Greek), with notes as before.

COINS

The Decadrachms of Agrigentum.—In *Le Musée*, VI, 1909, pp. 177–180 (fig.), E. J. SELTMAN argues that all the known decadrachms of Agrigentum except the one at Munich are forgeries. The position in which the reins are held is a sufficient proof of its genuineness (see *A. J. Num.* XLIII, pp. 160–163; fig.).

Tarentine Coins of Hannibal's Time.—The find of 114 coins in mint state struck at Tarentum during the Hannibalic occupation (ca. 212–209 B.C.) has already been described by AURELIO BELLENI in *Boll. Num.* VII, pp. 65–69 (cf. *A.J.A.* XIII, p. 515). It is further treated by M. P. VLASTO in *Num. Chron.* 1909, pp. 253–263, who acquired some of the coins, which he reproduces in a fine plate. He differs from BELLENI in believing the standard adopted to be that of the (reduced) Roman *denarius*, rather than of the Corinthian *drachma*.

The Copper Coinage of Sosius, Proculeius, and Crassus.—In *J. Int. Arch. Num.* XI, 1908 (published 1909), pp. 215–229 (pl.), M. BAHRFELDT discusses the copper coinage of Sosius, Proculeius, and Crassus dating from the end of the Roman republic.

Senatorial Medallions.—In *R. Ital. Num.* 1909, pp. 343–364 (5 pls.), FRANCESCO GNECCHI, convinced by the arguments of CAMILLO SERAFINI, in an article read before the Accademia Pontificia Romana, February 28, 1895, retracts his former views concerning a classification of “senatorial medallions,” expressed in *R. Ital. Num.* 1892, and proposes to apply that term to the coins of the empire, having otherwise the characteristics of medallions, which bear the letters S. C. Such issues are much rarer than the “imperial medallions” (without the S. C.), and begin before them (with Vespasian, so far as at present known, the “imperial” beginning with Hadrian). A description of all known types (38) of the larger size (the latest is of Maximian), accompanied by plates, is appended to the article.

Proconsulship of C. Asinius Pollio.—The proconsulship in Asia of C. Asinius Pollio is assigned by G. Pansa, on the basis of arguments from his coinage, to the period between 23 and 30 B.C. The author shows that such coinage of the Asiatic cities, where the name of the proconsul appears in the dative, is commemorative merely of a former governor, the name of a ruling governor being given in the genitive with ΕΤΙ (*Riv. Ital. Num.* 1909, pp. 365–378; ill.).

Alexandrian Coinage of Galba.—In *Num. Chron.* 1909, pp. 274–284 (ill.), J. G. MILNE describes the four different issues of billon tetradrachms from the mint at Alexandria during the reign of Galba. The reverse types are only five in number, which, with the varying obverses, make 24 separate coins, plus two varieties. The author had examined ten hoards (from 120 to about 280 A.D.), containing specimens of this coinage, the total number of pieces being 228.

The Iseum Campense on a Coin of Vespasian.—In *Sitzb. Berl. Akad.* 1909, pp. 640–648 (pl.), H. DRESSEL discusses the representation on a rare coin of Vespasian (Cohen, *Descr. hist. des monnaies frappées sous l'Empire romain*, 2d éd. I, p. 405, Nos. 484, 485), in which he recognizes the temple of Isis in the Campus Martius. The front of the peribolus, a structure with Corinthian columns and a semicircular gable, is represented, and within is

seen the temple proper, in which stands the statue. There is in the whole *ensemble* a curious mixture of Egyptian and classical elements. The interpretation is supported by Josephus (*Bell. Jud.* VII, 5, 4) and Cassius Dio (79, 10).

Medallions on Military Ensigns. — GIOVANNI PANSA publishes in *Boll. Num.* VII, 1909, pp. 145-147, 159-165 (fig.), a bordered medallion of Marcus Aurelius acquired from a private collection in Rome, and still insists, as against FR. GNECCHI, that all the bordered medallions without exception served the sole purpose of decorations of military standards (cf. *A.J.A.* XII, p. 241; XIII, p. 225).

The Temple of Cybele. — Numismatic material of the Antonine age, bearing on the temple of Cybele on the Palatine, is discussed by KATHARINE ESDAILE in *Röm. Mitt.* XXIII, 1908, pp. 368-374 (pl.).

Distribution of the Coinage of Alexander Severus. — In *J. Int. Arch. Num.* X, 1907 (published 1909), pp. 311-332, W. THIELE publishes a list of places where coins of Alexander Severus were struck, bringing Cohen's list (IV, pp. 476 ff.) up to date. The head of the emperor always appears in the same form in the provinces from 218 to 263 wherever the coin was struck.

Fulvia Plautiana Sebaste. — In *Mb. Num. Ges. Wien*, VIII, 1909, pp. 117-119, JOSEPH SCHOLZ argues on the basis of numismatic evidence for the recognition of this Plautiana as a historical personage, although otherwise unknown, and against her identification with the empress Plautilla.

GENERAL AND MISCELLANEOUS

The Civilization of the Nuraghi of Sardinia. — In *Rend. Acc. Lincei*, XVIII, 1909, pp. 3-48 and 87-117 (8 figs.), E. PAIS, after briefly discussing the uses to which the three or four thousand circular stone structures known as *nuraghi* were put, combats the tendency to connect them, as well as almost all other archaic finds, with Crete, for he thinks that explorations in Syria and Asia Minor may at any time upset prevailing theories. He disbelieves the stories of Greek writers connecting these remains with Heracles, the Theban Iolaus, and Daedalus, and refuses also to recognize Sardinians in the Shardana who invaded Egypt in the nineteenth dynasty, insisting that the Sardinians were never a sea-power. He is inclined to think that Tyrian influence coming directly by sea or through Carthage and Spain may be recognized in these monuments of the Nori. They were used probably as fortified abodes (not as tombs, as Pinza still thinks), and are often found grouped together in large settlements. Pais compares them with the Apulian Casedde or Truddi, which are, however, not so massively built. Many of the finds near them, arms, utensils of copper, statuettes of shepherds, priests, soldiers, boats surmounted by a cow's head, suggest a connection with Etruria, and point to an epoch immediately preceding historic times, or even to the time of Punic greatness. Taramelli puts them between the end of the third and beginning of the second millennium B.C. Some specimens of writing are reproduced, as also a trophy (?) formed of three spears inserted in a mass of copper. In the second article some sociological inferences are drawn and the way pointed out to a more careful study based on the life of the Sardinians of to-day. The systematic arrangement of *nuraghi* about an elevated pasture district, Giara di Gesturi, in the province

of Cagliari, so as to protect the roads and springs and the cultivated fields on the surrounding slopes, has been examined by A. TARAMELLI (*Arch. Anz.* 1909, cols. 136-139; fig.), and this, together with the details of the structures themselves, strongly fortified dwellings, gives a fairly clear picture of the life of the pre-Phoenician inhabitants. In the archaic period the coast regions presented a species of mixed civilization. In *Ausonia*, III, 1908, pp. 18-48 (33 figs.), D. MACKENZIE examines the relation of *nuraghi* and Giant's Tombs in various parts of Sardinia. The *nuraghi* of Lo, Calameira, Massonibroccos, Noedda, Ulei, Praidis, Gennacili, Su Chiai, Serucci, Imbertighe, and San Gavino are discussed in connection with the Giant's Tombs at Santu Luisu, Fontana Morta, Ispiluncas, Noedda, Camposorige, Ludueira, Campo Selenes, Su Chiai, Isarus, Imbertighe, and San Gavino. (See *A.J.A.* XII, pp. 470-471; XIII, pp. 221 and 510.)

Prehistoric Remains at Matera.—In *Annals of Archaeology and Anthropology*, II, 1909, pp. 72-90 (4 pls.; 2 figs.), T. E. PEET points out the importance of the prehistoric remains in the vicinity of Matera in southern Italy. They date from neolithic times and later. He divides the pottery into seven classes.

The Etruscan Civilization of Felsina.—In *Rend. Acc. Lincei*, XVIII, 1909, pp. 192-223 (5 figs.), P. DUCATI reviews the contents of two Etruscan graves of the early fifth century B.C., found near Bologna and excavated, the one by Von Duhn and the other by Brizio, in order to compare three burial urns found in 1896 beyond Porta S. Isaia. He concludes that the latter, for topographical reasons, are the earlier, and justify placing the descent of the Etruscans into the region of Bologna in the decades following the middle of the sixth century. The article discusses at length the differences in manner of growth of the Italian and Etruscan necropoleis and the encroachment in the latter of the Italian custom of burning the dead instead of burying them. Attic vases, Ducati thinks, found their way into Felsina by way of Adria, not, as Helbig supposes, via Sicily. The acropolis of Felsina he places on a hill between Porta Saragozza and the Aposa.

The Different Races in Sicily.—In *R. Stor. Ant.* XII, 1909, pp. 459-482, V. COSTANZI argues that the ancient writers Thucydides, Antiochus of Syracuse, etc., depended upon legends in their statements about the different races in Sicily. There was no racial difference between the Sicanians and the Sicels, as is shown by archaeological discoveries; but there was such a difference between the neolithic and eneolithic civilizations. The neolithic inhabitants were non-Aryan and non-Italic; those of the Bronze Age Italian invaders. He suggests that the Elymi were the autochthonous inhabitants driven to the west end of the island by the arrival of Sicanian-Sicel invaders. There is as yet no satisfactory evidence that prehistoric Cretans invaded Sicily. The tradition of a difference between Sicanians and Sicels probably arose from geographical distinctions and from the fact that the Sicels about Syracuse fell under the influence of the Greeks, and the Sicanians about Agrigentum under that of the Carthaginians.

The City of Servius.—In *Cl. Phil.* IV, 1908, pp. 420-432, E. T. MERRILL discusses 'The City of Servius and the Pomerium,' and maintains that the city of Servius Tullius is not identical with that enclosed by the existing fourth century 'Servian Wall,' and did not enclose the Aventine. The *pomerium* consequently did not enclose the Aventine till the time of Claudius,

though strategical necessity brought about its inclusion within the existing ring-wall.

The Beginnings of the Forum Boarium.—In *Mél. Arch. Hist.* XXIX, 1909, pp. 103-144 (plan), A. PIGANJOL revives the theory of Bunsen and Urlichs that the Servian wall connected the Capitol and the Aventine and did not descend to the Tiber. The porta Carmentalis was then south of the Capitol at the end of the vicus Jugarius, the porta Trigemina was between the Aventine and Sta. Maria in Cosmedin, and the Forum Boarium was almost entirely outside of the wall. The ruins under and behind Sta. Maria in Cosmedin are those of the Ara Maxima, and the round temple (Sta. Maria del Sole) is that of Hercules. The harbor (portus Tiberinus) was where the Forum Boarium reached the river. The temples of Fortuna and Mater Matuta were not far from the Piazza Sta. Maria della Consolazione. The position of the western gates in the Servian wall and several other topographical details are discussed.

The Via Salaria.—In *Röm. Mitt.* XXIII, 1908, pp. 275-329 (12 figs.), N. PERSICETTI presents the results of fresh studies of the Via Salaria, which he is convinced has many remains of pre-Roman construction. He gives special attention to those sections of the road in the immediate vicinity of the city, and near Rieti.

The Domus Aurea in the Topographical Documents of Mediaeval Rome.—In *Rend. Acc. Lincei*, XVIII, 1909, pp. 224-230, A. BARTOLI, discussing *Tabularium S. Mariae Novae ab anno 982 ad annum 1200* (*Arch. Stor. Patr.* XXIII-XXVI), identifies the following: *Domus Nova* with the Basilica of Constantine; *Trivio Cambiatoris*, as near the corner of the Thermae of Titus; *via publica* with *via del Colosseo*; *ortuo de eccl. S. M. Nore* with the rear portion of S. Maria Nova; *Templum Romuli* with the Temple of Venus and Rome; in *Quatronis* with piazza del Colosseo.

The Obelisk in the Piazza Navona.—The hieroglyphics of Domitian's obelisk, in the Piazza Navona, are transcribed and interpreted by G. FARINA in *B. Com. Rom.* XXXVI, 1908, pp. 254-274. The now sadly damaged obelisk, brought to its present position in 1649, was probably first erected near the Temple of Isis. In its inscription the emperor bears the titles of a Pharaoh.

The Barberini Collection of Antiquities from Praeneste.—In *Bol. Arte*, III, 1909, pp. 161-211 (2 pls.; 34 figs.), A. DELLA SETA discusses the more important objects in the Barberini collection of antiquities from Praeneste now in the museum of the Villa Giulia, Rome. They are of gold, silver, bronze, and ivory, and are to be dated either in the seventh century B.C. or in the third or second century.

The Chariot from Monteleone.—In *Jh. Oest. Arch.* I. XII, 1909, pp. 74-80 (3 figs.), P. DUCATI argues that the three reliefs on the front and sides of the chariot from Monteleone, now in the Metropolitan Museum in New York, represent three episodes in the career of Achilles. In the centre Thetis is presenting Achilles with his arms; on the right is his battle with Memnon over the body of Antilochus; and on the left his departure for the Islands of the Blest.

Primitive Bronze Disks.—In *Le Musée*, VI, 1909, pp. 209-213 (4 figs.), A. SAMBON discusses the early bronze disks ornamented with fantastic figures of animals found in central Italy. They were probably attached to

a background of leather, but the use to which they were put can only be conjectured. Three specimens are described.

The Naples Bronzes.—The Field Museum of Chicago has issued a detailed catalogue of the reproductions of bronzes, etc., in the Naples museum in its possession. It is the work of Professor TARBELL. Each object is carefully described and illustrated and the place of its discovery, where known, and the literature given. There are three hundred entries in all, but no statues or statuettes are included. No such catalogue of the originals exists. (*Catalogue of Bronzes, etc., in the Field Museum of Natural History.* By F. B. Tarbell. Field Museum of Natural History. Publication 130. Anthropological Series, Vol. VII, No. 3. Chicago, 1909; 52 pp.; 82 pls.)

The Tablets from Locri Epizephyrri.—In *Ausonia*, III, 1908, pp. 136–234 (84 figs.), Q. QUAGLIATI gives an account of the tablets or *pinaces* found on the site of Locri Epizephyrri in 1906. They are square in shape, 20–30 cm. long on each side, and 5–10 mm. thick, and are made of a poor clay common in the neighborhood. The designs were stamped on and the tablet then painted. The background is usually blue and the other colors used are red, pink, green, yellow, and white. They date from the end of the sixth century to about 460 B.C. and show the influence of Ionic art. Among the subjects represented are a visit to the tomb; the worship of the heroic dead; the rape of Persephone; also a beardless male figure in a chariot drawn by winged horses holding a female figure in his arms; Hades, Persephone, and Hermes; Hermes alone with winged hat holding a cock; Hermes and Aphrodite; Eros; Demeter; a woman seated before a large chest or basket with raised lid and an infant inside; scenes from daily life; female figures before a tree; small temples, etc. These objects are now in the museum at Tarentum. The deity to whom they were dedicated has not yet been identified.

A New Fable.—In *Ausonia*, III, 1908, pp. 71–78 (pl.; fig.), G. PATRONI publishes the upper part of a Roman grave relief in the museum at Cremona, upon which are a fox and a cock facing each other. Above the fox are the words *Salve tu*; and above the cock *Novi te*. A fable not otherwise known was apparently represented on the stone.

Latin Palaeography.—A new publication of Latin manuscripts in photographic facsimiles, with brief descriptive text in Latin, has been issued by B. G. Teubner. The facsimiles reproduce twenty-five pages from twenty-two manuscripts (in Bamberg, Berlin, Erlangen, Florence, Madrid, Paris, Vienna, and Wolfenbüttel) in the original size and afford a general view of the different styles of writing to the fifteenth century. The plates are accompanied by a brief description in Latin. The price is low, to encourage introduction in schools. (*Palaeographia latina. Exempla codicum latinorum phototypice expressa scholarum maxime in usum edidit M. IHM.* Series I. Lipsiae, 1909, B. G. Teubner. 16 pp. 8vo; 22 pls. Folio 5 Mk.)

FRANCE

The Dimensions of the Amphitheatre at Nîmes.—In *R. Arch.* XIV, 1909, pp. 264–267, J. A. DECOURDEMANCHE gives, after Auguste Pelet, *Description de l'amphithéâtre de Nîmes* (3d ed., Nîmes, 1866), the dimensions and proportions of the amphitheatre at Nîmes, one of the best-preserved

Roman buildings. The figures show the great exactness of the work. From them the length of the Drusic foot employed (0.3196 m.) could be deduced if it were not known from other sources.

The Date of the Triumphal Arch at Orange.—In *C. R. Acad. Insc.* 1909, pp. 513–518, S. REINACH shows that the words of Vincentius (fifth century A.D.) in his commentary to the fifteenth Psalm, *Unde Aurasicae* (sic) *in arcu triumphali Massiliense bellum sculptum habetur, ob signum victoriae Caesaris*, are correct. The arch was erected by the father of Tiberius soon after 46 B.C., to commemorate Caesar's victory over the people of Marseilles. The inscription of Tiberius was added when the latter as emperor in his turn put down a rebellion in Gaul.

The Black Gate of Besançon.—In *R. Arch.* XIV, 1909, pp. 254–261 (11 figs.), S. REINACH publishes, with comments, new drawings (by Mr. Spitz of Besançon) of the reliefs of the *Porte Noire* of Besançon, to supplement or replace those given in his *Répertoire de reliefs* (1909), I, pp. 78–82.

The Enclosure at Saint-Pierre-en-Chastre.—In *M. Soc. Ant. Fr.* LXVIII, pp. 160–184 (2 plans; fig.), O. VAUVILLÉ argues that the ancient enclosure at Saint-Pierre-en-Chastre (Oise) is the site of an *oppidum* of the Suessiones. Excavations have brought to light objects dating from the neolithic period and later.

Inscriptions from Vendoeuvres-en-Brenne.—In *M. Soc. Ant. Fr.* LXVIII, 1909, pp. 185–214 (5 figs.), A. HÉRON DE VILLEFOSSE discusses two Latin inscriptions found at Vendoeuvres-en-Brenne (Indre), one of which records the erection of buildings and shows the importance of the town in Roman times. The word *diribitoria* occurs in this inscription. He also publishes a carved block upon which is a seated divinity with stag's horns on his head and a nude boy standing on either side of him.

Bas-reliefs of Roman Gaul.—In his *Recueil général des bas-reliefs de la Gaule romaine*, II, Aquitaine (Paris, 1908, Imprimerie Nationale. viii, 478 pp.; 1100 figs. 4to), É. ESPÉRANDIEU continues his description of the bas-reliefs of Roman Gaul. A few reliefs earlier than the Roman period and a few pieces of sculpture in the round are included in this volume. Each object is briefly described and usually reproduced, and if it has already been published, its bibliography is added.

A Gallo-Roman Symbol of Devotion.—At the temple of the Mont de Sène, of Massigny-les-Vitteaux, of Essarois, of the Seine, and elsewhere statues have been found which represent persons holding offerings. These persons have on the front and back of their bodies large disks supported by bands which pass over the shoulders and round the waist. These were explained by Baudet as *bullae*. In *R. Arch.* XIII, 1909, pp. 358–362 (2 figs.), É. ESPÉRANDIEU explains them as symbols or signs of devotion. The originals were probably of woven material.

Roman Frescoes at Sainte-Colombe-les-Vienne.—In *B. Soc. Ant. Fr.* 1909, pp. 202–204, A. HÉRON DE VILLEFOSSE reports that there are remains of thirty-five Roman frescoes at Sainte-Colombe-les-Vienne.

Two Ancient Bronzes.—In *B. Soc. Ant. Fr.* 1909, pp. 182–187 (2 figs.), A. HÉRON DE VILLEFOSSE discusses two ancient bronzes in the collection of Charles Mège at Paris. One represents a panther with left front paw raised and resting on a vase. This was found thirty years ago at Puy-Saint-Martin. The other, found in 1898 at Cerro de Montemolin, Spain, and

published by P. Paris (*R. Ét. Anc.* I, pp. 163-167), is a pair of terrets ornamented with the figure of a Greek seizing a mounted Amazon by the hair.

Astrology in Gaul.—In his *Astrologie chez les Gallo-Romains* (Bordeaux, 1909, Feret et Fils; Paris, A. Fontemoing 182 pp.; 2 figs. 8vo. 10 fr.), H. DE LA VILLE DE MIRMONT publishes a history of astrology in Gaul from its Graeco-Roman beginnings to the sixth century A.D. The work first appeared in instalments in *R. Ét. Anc.*

Chemical Analyses of Celtic Coins.—In *Z. Ethn.* XLI, 1909, pp. 458-462, R. Forrer of Strassburg presents the results of analyses of various Celtic coins made by, or under the supervision of, C. Virchow. The coins were from various places, chiefly in France and Hungary.

BELGIUM

Megaliths in Belgium.—In *Bulletin des musées royaux à Bruxelles*, I, 1908, pp. 52-55 (3 figs.), A. DE LOË gives a brief account of the megaliths at Wéris, Exel, Frasnes, and Baileux in Belgium.

A Portrait Head in Brussels.—In *Bulletin des musées royaux à Bruxelles*, I, 1908, pp. 25-26, F. C. discusses a marble portrait head in the museum at Brussels and dates it in the fourth century A.D.

Egyptian Antiquities in Brussels.—In *Bulletin des musées royaux à Bruxelles*, I, 1908, pp. 41-44, 55-56, 65-66, 76-78, and 85-86 (8 figs.), J. CAPART catalogues seventy acquisitions from Egypt and describes the more important objects in the collection.



FIGURE 4.—TERRA-COTTA VESSEL FROM CHIETI.

GERMANY

Primitive Arts.—At the November (1908) meeting of the Berlin Archaeological Society, C. SCHUCHHARDT showed how the pottery of northern Europe, of which the megalithic graves of northern Germany have yielded the oldest examples, was developed from basketwork, perhaps with an intervening stage of baskets stiffened with clay, and that it had its decoration on structural lines, while the vases of southern Europe, as far north as the

Danube, are ultimately derived from the use of gourds and other hard-shelled fruits as vessels, sometimes with handles and hangers of basket or

network, and had greater freedom in their decorative schemes. The occasional appearance of basketwork designs as far south as Boeotia is noteworthy. Further, the head ornament of the Trojan treasure and the neck, arm, and belt plates of the Bronze Age in the north are imitations of knotted and sewn string or thread. (*Arch. Anz.* 1909, cols. 36-37.)

Local Archaeology in Southwestern Germany. — In *R. Arch.* XIV, 1909, pp. 290 f., S. R. gives the titles of papers read at the meeting of the archaeological society of southern Germany held at Worms in September, 1909. The papers treated of Roman and pre-Roman remains. Notes on the rich museum at Mainz, the admirably organized museum at Darmstadt, the Prehistoric Museum and the Wallraff-Richartz Museum at Cologne, the museums at Trèves, Luxemburg, and Metz are added, and the restoration of the Saalburg, near Homburg, is highly praised.

A Terra-cotta Vessel in the Antiquarium in Berlin. — In *Ber. Kunsts.* XXX, 1909, cols. 263-269 (fig.), R. ZAHN discusses a shallow terra-cotta vessel in the Antiquarium, Berlin (Fig. 4), probably found at Chieti, the ancient Teate, near the east coast of Italy. It is round, with a handle in the shape of a ram's head on one side, and is decorated in the centre with a trophy and armor roughly modelled. The trophy may commemorate a victory over the Samnites. Two other similar vessels are known, one in Göttingen and the other in Alexandria. It dates from the first century B.C.

AUSTRIA-HUNGARY

Roman Grave Stelae. — In *Jh. Oest. Arch. I.* XII, 1909, pp. 224-242 (4 figs.), H. HOFMANN publishes four Roman grave stelae found at Walbersdorf, near Ödenburg, Hungary. Two of them have half-length portraits of the deceased and his wife above and an epitaph below. The other two are of the same style except that one of them has a man's head above, and the other the head of a man and a woman. All of them seem to date from the first century A.D.

A Pannonian Casket. — A Pannonian casket in the National Museum at Budapest (discovered at Intercisa in 1906) is described and compared with other similar caskets from the Danube and Rhine provinces by R. ENGELMANN in *Röm. Mitt.* XXIII, 1908, pp. 349-367 (pl.; 2 figs.). The bronze ornaments, which alone have been preserved, are medallions of Bellerophon, Hercules, etc., and Gorgon heads. They are of the age of Constantine.

GREAT BRITAIN

The Chronology of the British Bronze Age. — In *Archaeologia*, LXI, 1908, pp. 97-162 (209 figs.), O. MONTELIUS attempts to establish the chronology of the Bronze Age in Great Britain and Ireland, dividing it into five periods as follows: *Period I*, the Copper Age, from the middle of the third millennium B.C., or earlier, to the middle of the second millennium. *Period II*, from the beginning of the second millennium to the seventeenth century. *Period III*, from the seventeenth century to the end of the fifteenth. *Period IV*, from the end of the fifteenth to the middle of the twelfth century. *Period V*, from the middle of the twelfth to the end of the ninth century. The Iron Age in Great Britain and Ireland began about 800 B.C.

The Stone Circles of East Cornwall.—In *Archaeologia*, LXI, 1908, pp. 1-60 (8 pls.; 6 figs.), H. S. GRAY describes the five stone circles of East Cornwall known as the Stripple Stones, the Trippet Stones, the Leaze Stone Circle, the Fernacre Stone Circle, and the Stannon Stone Circle. Near the last two are numerous hut circles which seem to be contemporary, but no human remains have been found in any of them except a few flint flakes from the Stripple Stones discovered by the excavations of 1905. The position, size, and condition of every stone in the five circles is recorded.

AFRICA

The Nybganii.—In *C. R. Acad. Insc.* 1909, pp. 568-579 (map), R. CAGNAT publishes inscriptions which show that the *Nyβηγνοί* of Ptolemy (IV, 3, 6) were called Nybganii. Their principal town was Civitas Nybgeniorum, later known as Turrus Tamalleni.

The Punic Necropolis of Ard el Kheraïb.—In *Notes et Documents*, III, 1909 (84 pp.; 7 pls.; 61 figs.), A. MERLIN and L. DRAPPIER describe the Punic cemetery excavated at Ard el Kheraïb, west of the hill of Bordj Djedid, Carthage (see *A.J.A.* XIII, p. 373). The burials were made at the bottom of a shaft, usually from 10 to 15 m. deep, or in a chamber leading from the shaft. The body was generally placed in a coffin of wood, or rarely of stone, but was sometimes cremated. Considerable local pottery, silver jewelry, etc., was found, as well as Punic coins of bronze and one of gold. The necropolis dates between 400 and 300 B.C. and resembles that at Ard el

Morali. The contents of the graves throw some light on the influence of Greek civilization on Carthage. The 108 tombs opened are described in detail by Drappier.

The Epitaph of the Priestess Hanni-Ba'al.—In *C. R. Acad. Insc.* 1909, pp. 259-268, E. VASSEL discusses the epitaph of the priestess Hanni-Ba'al from Bordj Djedid, Tunis, briefly mentioned *ibid.* 1907, p. 804. The names *Bod-Melqart*, *Qart-jaton*, and *Qart-mašal* lead him to conclude that the Carthaginians had a divinity called 'El-qart or *Ba'al-qart* identical with the Genius of the town; that his name may have been shortened to *Qart* and thus have become the eponym of Carthage.

The Inscription from Aïn-Ouassel.—In *Klio*, IX, 1909, pp. 377-378, A. MERLIN discusses the text of the Latin inscription from Aïn-Ouassel.

Genseric and the Ship at Mahdia.—In *B. Soc. Ant. Fr.* 1909, pp. 205-208, F. MARTROYE calls attention to Procopius, *De Bello Vandalico*, I, 5, where it is related that after the sack of Rome one of the ships of Genseric, which was carrying statues, sank on its way to Carthage. He suggests the possibility that this is the ship found off Mahdia.



FIGURE 5.—MARBLE HEAD IN CAMBRIDGE.

UNITED STATES

The Fogg Art Museum.—In *B. Mus. F. A.* VII, 1909, pp. 21–35 (18 figs.), E. W. F. and G. H. CHASE give a brief account of the collections in the Fogg Art Museum of Harvard University, the former describing the paintings, the latter the classical antiquities. A Meleager, an Aphrodite of Hellenistic date, a female head of the fourth century (Fig. 5), one of the archaic bronze tripods (C) published in *A.J.A.* XII, pp. 287 ff., and the collection of Arretine moulds are especially noteworthy.

EARLY CHRISTIAN, BYZANTINE, AND MEDIAEVAL ART

GENERAL AND MISCELLANEOUS

The Church of the Holy Sepulchre at Jerusalem.—In *R. Arch.* XIV, 1909, pp. 42–51, L. PARMENTIER discusses the text of the letter of Constantine to Bishop Macarius of Jerusalem concerning the building of the church of the Holy Sepulchre as given by Eusebius, Theodoret, and others. The nave (*καμάρα*, also elsewhere *oikos*) was to have a gilded coffered ceiling. At each side was one aisle of two stories. Here also the ceilings were to be gilded.

Byzantine Churches in Constantinople.—Under the title 'Une mission à Constantinople,' 1907–1908, JEAN EBERSOLT (*R. Arch.* XIV, 1909, pp. 1–41; 5 pls.; 30 figs.) gives the results of his researches in churches at Constantinople now converted into mosques. By chance the column of Marcian became accessible, and its base is described. On three sides is a garland encircling a shield on which is a six-branched cross. On the front were two Victories in relief, only one of which is preserved, now much mutilated. The body is well proportioned and full of life, and the drapery is excellent. The Byzantine sculptors of the fifth century were still true to the ancient traditions. The churches described are: a basilica, Mir-Achor-Djami; an octagon, Kutchuk-Aya-Sophia; a church with three conchs, Hodja-Mustafa-Pacha-Djami; and seven cruciform churches, Kalender-Djami, Atik-Mustafa-Pacha-Djami, Gul-Djami, Boudrum-Djami, Kilissé-Djami, Eski-Imaret-Djami, Fétiyé-Djami. The plans, construction, and decoration are described, with illustrations, and mistakes in previous descriptions are corrected.

The Basilicas of St. Cyprian.—In *R. Arch.* XIV, 1909, pp. 188–202, CH. SAUMAGNE discusses the basilicas of St. Cyprian at Carthage. The site of the one in the *Ager Sexti*, the place of the martyrdom, is not disputed. That of the basilica *juxta Piscinas* in the *Areae Macrobianae* has been placed on the Koudiat-Soussou, but topographical considerations render this impossible. Its probable site was outside the ancient city, near some springs, by the sea, near the promontory Sidi-Bou-Saïd. There was no third basilica.

Four Byzantine Churches in Argolis.—The churches at Plataniti, Chonika, Merbaka, and Areia are published by A. STRUCK in *Ath. Mitt.* XXXIV, 1909, pp. 189–236 (4 pls.; 9 figs.). The three latter belong to the same period, that at Chonika being the earliest. The church at Merbaka is dated in 1148–49 A.D. by a building inscription.

Architectural Refinements in Mediaeval Churches.—In *The Architectural Record*, XXVI, 1909, pp. 132–139 (5 figs.), C. S. HASTINGS proposes

a method by which the architectural refinements in mediaeval churches may be tested and accurately measured from photographs with the help of a dividing machine and a comparator. Photographs of the church of St. Ouen at Rouen are used for purposes of illustration.

Regulations for the Foundations of Buildings.—In *Un formulaire du VIII^e siècle pour les fondations d'édifices et de ponts* (Paris, 1908, Picard et Fils. 35 pp.), V. MORTET publishes with comment portions of a Latin treatise giving rules for the construction of the foundations of buildings and bridges. The treatise was first published in *Archaeologia* (XXXII, pp. 183-244), from a manuscript of the twelfth century, but two earlier manuscripts are known, one of the tenth, and one of the eighth century. The work goes back to some Roman writer on architecture.

The Meaning of the Word "Apse."—In *Lexicographie archéologique* (Paris, 1908, Picard et Fils. 9 pp.) V. MORTET shows that the word "apse" (*ἀψίς*, *absis*) among the Byzantines, as among the Romans, meant a portion of a circle less than half the circumference. In popular speech it may have been used to indicate a semicircle.

A Byzantine Coin Amulet.—In *J. Int. Arch. Num.* X, 1907 (published 1909), pp. 333-334 (fig.), K. M. KONSTANTOPOULOS shows that a small Byzantine coin published by N. Froehner (*Collection Photiades-pacha, Monnaies byzantines*, p. 49), is really an amulet. On the obverse about the head of the deity are the words, ΑΓΙΟC, ΑΓΙΟC, ΑΓΙΟC; and on the reverse ΒΓΗΑ CV ΔΟΡΙΤΕ, which he interprets Ὑγείᾳ[ν] σοὶ δορεῖται.

Byzantine Seals.—In *J. Int. Arch. Num.* X, 1907 (published 1909), pp. 335-366, N. A. VEES publishes the first part of an article on the interpretation and classification of Byzantine seals, discussing twenty-nine specimens.

Oriental Calligraphy.—In *R. Arch.* XIV, 1909, pp. 71-74, CLÉMENT HUART calls attention to the importance of the study of Oriental (Arab) calligraphy in its relation to archaeology. Calligraphic styles have individuality as styles of painting have, and knowledge of calligraphy may aid in assigning works of art to their proper authors and in detecting forged signatures.

A Mediaeval Greek Inscription.—A copy of the Greek inscription set up by Antonio le Flamenc in the church of St. George at Carditza in Boeotia, is published by W. MILLER, in *J.H.S.* XXIX, 1909, pp. 198-201, without transliteration except that of Buchon, which is incorrect, and without translation. The date is said to be fixed by the new copy as 1311, the year of the battle of the Cephissus, from which Antonio was one of the few survivors. The dedication may have been in fulfilment of a vow made before the battle. Steps have been taken to secure the plastered wall on which the inscription is painted.

Gold Ornaments from Southern Russia.—In *Ber. Kunsts.* XXXI, 1909, cols. 21-24 (2 figs.), H. SCHMIDT publishes two inlaid gold ornaments, perhaps originally attached to weapons and now in the Berlin Museum. They are evidently from southern Russia and date from about 500 A.D.

Notes from Germany.—In *R. Arch.* XIV, 1909, pp. 291 f., S. R. praises the volume on Roman Cologne (Vol. I in *Kunstdenkmäler der Rheinprovinz*) by J. Klinkenberg, gives some notes derived from a manuscript list in the library at Mainz, on restorations of paintings ceded to the museum of the

city by the French government in 1803, briefly describes a copy, in the historical museum at Frankfort, of the 'Descent from the Cross' in the Louvre, ascribed to Van der Weyden or to Bouts (the copy preserves the wings, on which are Sts. Peter and Catherine in grisaille), and mentions the following objects in the little-known city museum (*Rothes Haus*) at Trèves, to which the late F. X. Kraus bequeathed his collection of pictures and objects of art: a Siennese "Virgin and Child" (probably by Matteo di Giovanni), a Crucifixion on a gold ground, attributed to Giotto, a realistic marble head of Christ, apparently carved in northern Italy about 1400, and a bas-relief of Socrates and Alcibiades, by Canova.

The Conical Buckled-helmets (Spangenhelme) of the Baldenheim Type.—In *Z. Ethn.* XLI, 1909, pp. 506-507 (fig.), MAX EBERT discusses the many conical helmets of the early Middle Ages, formed by riveting together four triangular pieces of metal, concluding that their archetype was made in the Greek workshops of the Bosphorus and Pontus. They offer us very early examples of workmanship in cloisonné.

Mediaeval Ivories.—In *Gaz. B.-A.* II, 1909, pp. 301-323 and 389-403, A. MASKELL publishes articles on 'Sculpture in Ivory at the Beginning of the Christian Era, and in the Byzantine Epoch.' They amount to an argument in favor of a generally later date for monuments of this class than is usually assumed, and greater reserve in the assignment to schools.

A Mediaeval Canon of Human Proportions.—The *Liber divinorum operum simplicis hominis* (Migne, *Patrologia Latina*, Vol. 197, cols. 741 ff.) contains some remarkable reflections on the proportions of the body which amount to a canon. These passages are quoted in *Rep. f. K.* XXXII, 1909, pp. 445-446, by I. HERWEGEN.

The Origin of Mediaeval Stalactite Ornament.—The source of the mediaeval stalactite ornament is not to be found in Islamic architecture, but is derived from the Roman niche. The columns which stood in front of this were incorporated in the niche, and this being done the problem of turning a corner with such a wall-arcade was solved by projecting the half-dome of the niche from the corner and putting the columns under it. The next step was to take away the columns, leaving the half-dome across the corner as a convenient transition from a quadrate to an octagonal plan. Islamic architecture developed this motif into a spreading fan of successive rows of half-domes or niches, and this is the primitive form of the stalactite ornament. This carried with it the stamp of Roman origin in its use of the Roman shell to decorate the niches. Other mediaeval motifs of Roman origin are the arch-frieze, derived from the old Roman wall arcade by omission of the columns and such zigzag ornament as is found in the Mschatta façade, which comes by the elimination of columns from a similar wall-arcade with gables instead of archivolts. (B. SCHULZ in *M. f. Kunstw.* II, 1909, pp. 328-337.)

An Ethiopian Life of St. Menas.—M. CHAÎNE in *N. Bull. Arch. Crist.* 1909, pp. 71-78, calls attention to an Ethiopian Life of St. Menas, existing in several manuscripts, by which we may unify the conclusions drawn by Kaufmann from his excavations of the Menas-shrine at Mariout in Egypt. It also furnishes valuable evidence regarding the date of this monument, or collection of monuments, the relation of the camel to Menas, and his iconography.

ITALY

The Cathedral at Genoa. — In *Le Musée*, VI, 1909, pp. 163-175 (5 figs.), C. ENLART discusses the cathedral at Genoa, calling attention to its importance for French Gothic art.

Horizontal Curves in Pisa Cathedral. — In *Am. Archit.* XCVI, 1909, pp. 233-240 (11 figs.), W. H. GOODYEAR discusses the horizontal curves and asymmetries in plan of Pisa cathedral.

The Portal-Sculptures on the Florence Cathedral. — FRIDA SCHOTT-MÜLLER in *Jb. Preuss. Kunsts.* 1909, pp. 291-302, finds that the plastic decoration of Arnolfo di Cambio's façade was not removed or altered by Talenti's restoration, between 1360 and 1420, and that later descriptions, drawings, and other representations are valid as evidence for the identification of Arnolfo's figures over the cathedral doorways. These figures are shown to be: the Madonna statue in the Cathedral Museum, which stood over the main portal; two pairs of angels in private possession in Florence; the Virgin and three mourning apostles from the *Dormitio Mariae*, which filled the lunette over the right-hand portal, now in the Kaiser-Friedrich Museum at Berlin; and the "Reclining Virgin," from the Nativity of the other lateral lunette, now in private possession at Florence.

An 'Annunciation' by Berna da Siena. — The frescoes of the New Testament which Berna da Siena painted in the Collegiata of San Gimignano, are mostly impregnated with the style of Duccio, but one of them, the Annunciation, shows strong resemblance to the works of Ambrogio Lorenzetti and Simone Martini. (LISA DE SCHLEGEL, *L'Arte*, XII, 1909, pp. 204-207.)

S. Restituta at Naples. — A. SORRENTINO in *Boll. Arte*, III, 1909, pp. 217-233, analyzes the evidence for the date of the basilica of S. Restituta at Naples. He finds that the testimony of the *Libri Pontificales*, both of the Roman and Neapolitan churches, is authoritative, the latter being found to be based upon actual monuments. From these sources we learn that the basilica was the first church erected at Naples, and that it was built by Constantine. This is supported by the classical style of the earlier mosaics in the baptistery.

The Epitaph of Pope Pontianus. — The discovery of the epitaph of Pontianus in the crypt of S. Cecilia has put a new face upon the question of the value to be assigned to the monogram **MP** in such epitaphs. This *siglum* appears in the epitaph of Fabian in the papal crypt, and is obviously a later addition to the original inscription **ΦABIANOC · ΕΠΙ**. De Rossi thought that it was inscribed after due process of examination into the merits of the bishop to the title — at the successful conclusion of which he received the title as a *martyr vindicatus*. This could scarcely be the case with Pontianus, who died in exile in 236, and whose body was brought back from Sardinia at least as late as 238, for after such a lapse of time his title would be unquestioned, and when the epitaph was cut, the epithet "martyr" would have been inscribed at the same time. The "martyr," however, both in the case of this epitaph and that of Fabian, was added later, and as there is nothing to lead us to suppose that it would have been done in the third century, it was doubtless an act of commemoration which occurred after the peace of the church. (O. MARUCCHI, *N. Bull. Arch. Crist.* 1909, pp. 35-50.)

FRANCE

Architectural Refinements in Amiens Cathedral. — In the *Journal of the Royal Institute of British Architects*, XVI, 1909, pp. 715-740 (14 figs.), W. H. GOODYEAR makes a detailed reply to the criticisms of Bilson in regard to his discovery of architectural refinements in Amiens cathedral, reaffirming and strengthening his original position.

The Romanesque Cloister at Cadouin. — In *M. Soc. Ant. Fr.* LXVIII, 1908, pp. 299-323, A. BABUT discusses the romanese cloister at Cadouin (Perigord).

Proportions of French Sculptures of the Twelfth Century. — In *R. Arch.* XIV, 1909, pp. 75-93 (5 figs.) and pp. 216-249 (6 figs.), JEAN LARAN continues (cf. *A.J.A.* XII, 1908, p. 250; XIII, 1909, p. 236), and concludes his treatise on proportions in French sculpture of the twelfth century, discussing 'the conditions: the programme and technique.' In general, persons of importance and dignity are taller in proportion to their breadth than others. The heads of large figures are relatively smaller than those of small figures. The third dimension, thickness, cannot be so accurately studied, because Romanesque sculpture is seldom carved completely in the round. Real bas-reliefs are also very rare, sculpture being chiefly architectural, producing figures attached to buildings. The figures are cut in from the outside of the flat blocks, apparently without the use of clay models, and this accounts for their flat appearance. There seem to have been no fixed canons or formulae of proportions. In a few cases the work of an individual artist can be distinguished. Five schools (Burgundy, the Île de France, Provence, Auvergne, Languedoc) are distinguishable, though their limits are not clearly marked. In southern France Gallo-Roman traditions are preserved; in northern France Byzantine influence is strong. In the second half of the twelfth century these two tendencies neutralize each other, perhaps under the influence of the study of the living model. The study of numerical proportions is not the whole of the study of art and may not accomplish all that has been claimed for it by some of its devotees, but it furnishes definite criteria and serves to correct ocular illusions. More closely related groups of proportions are to be posited in (1) n statues by one artist than in n statues by different artists, in (2) n statues of one school than in n statues of different schools, in (3) n statues of one period than in n statues of different periods, in (4) n statues of one iconographic rôle than in n statues of different rôles, in (5) n statues of one monumental rôle than in n statues of different rôles, in (6) n statues of one scale than in n statues of different scales. These results are of general application.

The Author of the Altar-piece of Saint-Bertin. — In *Chron. Arts*, July 31, 1909 (reprinted in *R. Arch.* XIV, 1909, pp.) 287-290, PAUL DURRIEU gives reasons for ascribing the altar-piece of Saint-Bertin to Jean Hennecart, or Hennequart, who was valet de chambre and court painter to Philip the Good of Burgundy.

GERMANY

The Capitals in the Cathedral at Magdeburg. — *Jb. Preuss. Kunsts.* 1909, pp. 193-218 and 236-270, contains the concluding portions of R. HAMANN's articles on the capitals in the cathedral at Magdeburg, already noted in *A.J.A.* XIII, 1909, p. 525.

The Cologne Primitives. — In *R. Arch.* XIV, 1909, pp. 292 f., S. R. very briefly reviews the discussion concerning the paintings ascribed to Meister Wilhelm and the early school of Cologne. He evidently does not believe the pictures are, as has been asserted, so worked over as to be virtually modern, though he appears to think they have been somewhat retouched.

GREAT BRITAIN

Ludlow Castle. — In *Archaeologia*, LXI, 1908, pp. 257–328 (7 pls.; 28 figs.), W. H. ST. JOHN HOPE describes in detail the castle at Ludlow, Shropshire, partially as the result of excavations recently conducted by him. Colored plans showing the age of the different parts accompany the text.

The Round Church of the Knights Templars at Temple Bruer. — In *Archaeologia*, LXI, 1908, pp. 177–198 (3 pls.; 6 figs.), W. H. ST. JOHN HOPE reports upon his excavations at the round church of the Knights Templars at Temple Bruer in Lincolnshire in the spring of 1908. The plan of G. Oliver, based upon excavations carried on in 1832 and 1833, was found to need much correction. These early excavations must have been of a very superficial character. There was no “chamber with an immured skeleton” where Oliver thought he had found one, and the “horrible cavern” where he supposed human beings were burned was an old oven. The ground plan of the church has now been recovered.

RENAISSANCE ART

GENERAL AND MISCELLANEOUS

New Rembrandts. — In *Z. Bild. K.* 1909, pp. 1–8, W. BODE describes a number of the paintings of Rembrandt that have come to light within the last three years. The most important of these are David presenting the Head of Goliath to Saul, in the Heinemann Gallery at Munich; Portrait of a Man, in the collection of A. de Ridder at Cronberg; a Portrait of a Woman, in the collection of O. Huldshinsky at Berlin; a Descent from the Cross, belonging to Fr. Kleinberger at Paris; a Study of an Old Man, in the Kappel collection at Berlin; and a Portrait of a Scholar, belonging to L. Koppel of the same city.

Dürer's Portraits of Himself. — L. REAU in *Gaz. B.-A.* II, 1909, pp. 103–120, discusses the “auto-portraits” of Dürer. The series begins with a drawing in the Albertina at Dresden, with an inscription by the artist himself, telling us that he made the portrait at the age of thirteen. His likeness, when an apprentice in Wolgemut's studio, is preserved to us by a figure which he painted in one of the wings of the Peringsdörffer altarpiece (1487). The Dürer of the *Wanderjahre* is revealed by the very dramatic pen-drawing in the library at Erlangen (1492). The portrait in the old Goldschmidt collection, now belonging to M. de Villeroy, is probably the one sent by him to his fiancée Agnes Frey at Nuremberg. In the Prado-portrait we have Italian influence, and in the ideal head at Munich (*ca.* 1506), we have his features assimilated to Dürer's theoretical male type. After this, his visage appears only as a detail in a picture or drawing, save in one curious drawing at Bremen, depicting him ill and nude, save for a loin-cloth,

and pointing at a yellow patch on his left side, evidently a sketch sent to some physician to indicate the region affected.

ITALY

Jacopo dal Casentino.—H. P. HORNE contributes to *Rivista d' Arte*, 1909, pp. 95–112, a commentary on Vasari's life of Jacopo dal Casentino. The frescoes on the vault of Or San Michele ascribed to Jacopo by Vasari were painted between 1398 and 1401 and could hardly have been done by Jacopo, who was in his prime in 1339. Moreover, there is documentary and other evidence to show that Vasari has confused Jacopo dal Casentino with the painter Jacopo Laudini, who lived *ca.* 1400.

Michelangelo's Leda.—L. T. BORDONARO in *Boll. Arte*, III, 1909, pp. 307–315, traces the history of the Leda which Michelangelo made for Alfonso of Ferrara, and brings out the fact that not only the original went to France, where it was destroyed in the seventeenth century, but also the cartoon, from which a copy was made by Benedetto da Bene. The Leda of the National Gallery may be identical with da Bene's copy. If Michelangelo's model was an antique Leda, he must have used the latter first in making the Night for the Medici tombs, for the pose is the same as that employed in the Leda.

The Head by Michelangelo in the Possession of Aretino.—A letter of Aretino speaks of a clay head of St. Cosmas or Damian by Michelangelo, and A. GOTTSCHIEWSKI shows by the citation of a passage in Vasari's *Life of Michelangelo* that this was a veritable work by the master, and afterward belonged to Vasari himself. (*Mh. f. Kunstw.* II, 1909, p. 399.)

New Documents on Michelangelo and his Time.—K. FREY, in *Jb. Preuss. Kunsts.* 1909 (*Beiheft*), pp. 103–180, adds a third installment to his 'Studien zu Michelagnolo Buonarroti und zur Kunst seiner Zeit,' the first two parts of which appeared in the same periodical for 1885 and 1895. The present article contains a vast number of new documentary evidences relating particularly to the David, the twelve marble statues for Florence cathedral, the *Sala del Consiglio Grande*, and the building of St. Peter's.

Sebastiano del Piombo and the "Stanze di Raffaello."—M. WACKERNAGEL finds that the group on the right of the Miracle at Bolsena shows the coloring of a Venetian hand, and thinks that Sebastiano del Piombo was Raphael's assistant here, and also in the Decretals. (*Mh. f. Kunstw.* II, 1909, pp. 319–328.)

The Pseudo-Boccaccino.—Another study of the Pseudo-Boccaccino (see *A.J.A.* XIII, p. 532) is made by G. FRIZZONI, who undertakes in *Rass. d' Arte*, IX, 1909, pp. 127–132, to reconstruct his artistic personality. His name is unknown, and his works are often confused with those of Boccaccio Boccaccino of Cremona. He assigns to him the Madonna in the Crespi gallery at Milan; the Holy Family in the Fontana collection at Turin; a Portrait of a Girl belonging to the Del Majno family in Milan; the Zingarella in the Pitti; an Adoration of the Shepherds belonging to Dr. Müller-Walde; an Adoration of the Magi in the Brera; the Madonna with St. Sebastian in the Pinacotheca Estense at Modena; Sts. Mary and Martha in the Verona gallery; and a Madonna with an Angel in the Cagnola collection at Milan.

A Melozzo Controversy.—In *Boll. Arte*, III, 1909, pp. 281–287, G. CANTALAMESSA gives a new and accurate reproduction (Fig. 6) of the Annunciation recently discovered in the Pantheon (see *A.J.A.* 1909, p. 529) and assigned to Antoniazio Romano, from which it appears that the work is an excellent example of Melozzo da Forlì. He supports the new attribution by comparison of various details with other works of Melozzo. In like manner the St. Sebastian with donors recently acquired by the National (Corsini) Gallery at Rome, which has been assigned to Antoniazio Romano by Jacobsen and also by Everett (see *A.J.A.* 1907, p. 296), is defended as a work of Melozzo's by LISA VON SCHLEGEL in *L'Arte*, XII, 1909, pp. 307–313. A. SCHMARSOW, on the other hand, writing in *Mh. f. Kunstw.* II, 1909, pp. 497–503, rejects both of these attributions. The Pantheon fresco he assigns to Antoniazio, and argues that the resemblances to Melozzo's style in the St. Sebastian are to be explained by assuming that Melozzo commenced the figure of the saint, which was finished together with the donors, after his departure from Rome, by Antoniazio. The portrait in the Faenza in which Antonio Muñoz recently attempted to trace the hand of Melozzo is assigned by Schmarsow to some eclectic combining the Venetian style of Bellini and the local art of the Romagna. The same milieu produced the two paintings which Corrado Ricci recently added to the Uffizi under the name of Melozzo. In *Rass. d'Arte*, IX, 1909, October, pp. iii–iv, G. BERNARDINI defends his original attribution of the Pantheon Annunciation and the St. Sebastian to Antoniazio. M. PERNOT, in *Chron. Arts*, 1909, pp. 248–249, considers the Pantheon fresco too good for Antoniazio, but expresses some doubts as to the possibility of assigning it to Melozzo.

Federigo Barocci.—In *Abh. Sächs. Ges.* XXVI (No. 4), 1909 (168 pp.; 13 pls.), AUGUST SCHMARSOW discusses the development and the works of Federigo Barocci of Urbino (apparently 1526–1612). He finds that he was an artist of great individuality and originality, by no means a mere imitator or mannerist. He stands between Michael Angelo and Rubens in the history of the development of the barock style. *Ibid.* No. 5 (40 pp.), the same author describes and discusses Barocci's drawings in the Uffizi at Florence.

Benedetto Bonfigli.—W. BOMBE in *Rep. f. K.* XXXII, 1909, pp. 231–246, finishes his monograph on the Umbrian artist Benedetto Bonfigli. He was closely wrapped up in Siennese art at the beginning of his career. Naturalism and perspective he learned from Domenico Veneziano, Piero della Francesca, and Filippo Lippi. He was probably in Rome about 1450 and there doubtless met Fra Angelico, whose influence, together with that of Benozzo Gozzoli, is manifest in his later works. Another characteristic of his later period is the change from a light to a darker, brownish color-scheme. He was the last of the old Umbrian school, unable to keep step with the new art introduced by Fiorenzo and Perugino.

The Siennese in Umbrian Painting.—In *L'Arte*, XII, 1909, pp. 188–202, A. VENTURI undertakes to show the strong influence of Siena on the Umbrian quattrocentists, and to analyze the artistic development of Fiorenzo di Lorenzo. Giovanni Boccati del Camerino was the follower of neither Filippo Lippi, Gozzoli, Piero della Francesca, Gentile da Fabriano, nor Domenico Veneziano, but drew almost entirely from the Siennese Domenico di Bartolo. In the same way Sano di Pietro was the inspiration



FIGURE 6. — ANNUNCIATION IN THE PANTHEON.

of Matteo da Gualdo. A similar coincidence is manifest between the works of Niccolò Alunno and Matteo di Giovanni, but both derived their fantastic details from the Venetians. Benedetto Bonfigli again had little to do with the Florentines, and most of his peculiarities can be paralleled in the Sienese. Sienese influence, drawn through the medium of Niccolò Alunno and Bonfigli, was the determining factor of Fiorenzo di Lorenzo's art. He had scarcely attained to a manner of his own, when Perugino's art attracted him and his later works are unsuccessful attempts to assimilate the breadth and grandeur of the greater master.

The Holy Family in Gemona. — A document of 1510 records a contract of the Confraternity of St. Leonard in Gemona with the painter Gianfrancesco da Tolmezzo to paint for them an altar-piece "better than the St. Joseph he painted for S. Maria delle Grazie," from which it would be supposed that the Holy Family and St. Elizabeth, the only picture answering to this description which exists in S. Maria delle Grazie, must be by the hand of Gianfrancesco. But his known pictures are Squarcionesque, and it has been suggested that the original picture is gone and that the existing one is a substitution. L. VENTURI in *L'Arte*, XII, 1909, pp. 211-215, argues that the evidence of the document holds, and that the known pictures by the painter represent his earlier period, while the Gemona Holy Family belongs to his later work under the influence of the Vicentine school.

The New Pinacoteca Vaticana. — The most important pictures, from the historical point of view, which form part of the new Pinacoteca Vaticana, are discussed by G. BERNARDINI in *Rass. d'Arte*, IX, 1909, pp. 89-94 and 113-120. The gallery is interesting chiefly for the following early pictures: a Crucifixion and Saints of the school of Giotto; a Madonna, by Bernardo Daddi; a Virgin and Saints, by Giovanni del Biondo; a Legend of St. Stephen, one of a series of eight fragments of a predella, by a Sienese Giottesque; a Madonna and Female Saints, and a Christ before Pilate, by Pietro Lorenzetti; a Crucifixion, by a follower of Lippo Memmi; a Nativity, by Giovanni di Paolo; and a Miracle of St. Nicholas, by Gentile da Fabriano.

Attributions in the Querini Stampalia Gallery at Venice. — The second of E. JACOBSEN's articles on the Querini Stampalia pictures appears in *Gaz. B.-A.* II, 1909, pp. 216-236. In the course of this, he assigns the Judith, catalogued as Palma Vecchio, to Catena, quoting the description of a similar picture by Catena in Ridolfi's *Meraviglie dell'arte*. The Virgin adoring the Child, catalogued as of the Lombard school, is a certain work of Lorenzo di Credi. The Santa Conversazione, ascribed to Titian's school, is by Beccaruzzi. The unfinished portrait of a young woman probably represents Paola Priuli, the bride of Francesco Querini, and was painted by Palma Vecchio. The companion piece to this picture is the male portrait in the same gallery, which is sometimes assigned to Giorgione, but is to be considered the portrait of Francesco Querini, done by Palma. The article terminates with an argument in favor of giving to Palma Vecchio the Tempest calmed by St. Mark, which has also been attributed to Giorgione.

Attributions in the Palermo Gallery. — C. MATRANGA contributes to *Boll. Arte*, III, 1909, pp. 340-351, a discussion of the authorship of certain pictures in this gallery. The Pentecost, attributed to Perugino at first and by Di Marzo to Pietro Ruzzolone, is the work of an unknown cinquecento painter of the Messina school, who was also the author of the Dispute of St.

Thomas Aquinas and a number of other works. The recently acquired Madonna with Sts. Leonard and Roch belongs to the work of Vincenzo di Pavia, of which the museum possesses other examples.

A Catalogue of Tuscan Statuettes. — C. VON FABRICZY publishes in *Jb. Preuss. Kunsts.* 1909 (*Beiheft*), pp. 1-85, a catalogue raisonné of the terracotta and wood statuettes of Tuscany from 1300 to the early cinquecento. The catalogue is arranged according to the three schools of Pisa, Florence, and Siena, and within these divisions the statuettes are given according to their present location. The catalogue is followed by an index of artists.

Three Reliefs by Sansovino. — Three bronze reliefs each representing Christ in glory, sustained together with His cross by putti, and all ascribed to Sansovino, are the subject of an article by G. LORENZETTI in *L'Arte*, XII, 1909, pp. 288-301. One is on the door of the ciborium of the altar of St. Anthony in St. Mark's at Venice, another in the Bargello, and the third in the Kaiser-Friedrich Museum at Berlin. While the first two are indubitably Sansovino's work, the third is believed by the author to be an imitation of the sculptor's model by one of his contemporaries or an artist of somewhat later date.

The Tomb of Paul III in St. Peter's. — K. ESCHER traces the history of the tomb of Paul III in St. Peter's in *Rep. f. K.* XXXII, 1909, pp. 302-320. Fra Guglielmo della Porta received the commission in 1550 from Cardinal Alessandro Farnese. His original design was for a free-standing monument, and consisted of a great stone block with a chamber for the sarcophagus, two bronze cenotaphs, four allegorical figures of marble, four corner-statues, and eight *termini*. The upper part consisted of a bronze base with reliefs, and the colossal statue of the Pope. Then followed proposals of reductions of various kinds through the intervention of Paciotto, Michelangelo, and Annibale Caro, and Michelangelo finally succeeded in having the tomb set up in the niche of St. Andrew, which necessitated the reduction of the allegories to half their number. When finally inaugurated in 1585, it retained only the four corner-figures, the sculptured bronze base, the colossal statue, and the four allegories. In 1628, Urban VIII transported the monument to the left niche of the choir-tribunal, at which time the statues of Abundance and Peace, the bronze vase, and two corner-figures were removed.

A Letter of Benvenuto Cellini. — In *Mél. Arch. Hist.* XXIX, 1909, pp. 225-232, C. COCHIN publishes and comments upon a letter written November 18, 1553, by Benvenuto Cellini to Bernardo Salviati, bishop of San Papolo in Venice. In this Benvenuto describes a salt-cellar he had made. It was of oval form, supported by four children, and on the cover was Venus with Cupid asleep on her breast. Probably this is the salt-cellar begun for Cardinal Salviati, in part payment for which Benvenuto received 100 crowns in 1549 from the Cardinal of Ravenna.

The Farnese Palace in 1653. — In *Mél. Arch. Hist.* XXIX, 1909, pp. 145-198 (5 pls.), P. BOURDON and R. LAURENT-VIBERT give an account of the palazzo Farnese and its contents as described in two manuscripts now in the Archivio di Stato at Parma. These are inventories which belonged in the eighteenth century to Moreau de St. Méry. They were drawn up by B. Faini, April 1st, 1653.

SPAIN

Philippe de Bourgogne. — Philippe de Bourgogne was a sculptor of French origin, whose career was in Spain. Shortly after 1502 he carved the retable in the royal chapel at Granada. He made the choir-stalls of Burgos between 1507 and 1512. In 1536 he undertook the sculptures of the choir of Burgos cathedral, and after completing these, was commissioned to plan and decorate the new transept. The stalls of Toledo were undertaken in 1540, and are signed both by Philippe and by Berruguete. (P. LAFOND, *Burl. Mag.* XV, 1909, pp. 285-297.)

FRANCE

Franciscan Iconography in France. — An article by E. BERTAUX in *Gaz. B.-A.* II, 1909, pp. 135-162, takes the form of a review of E. Mâle's *L'Art religieux de la fin du Moyen Âge en France*, and disagrees with the latter's thesis in one important particular. Bertaux agrees with Mâle that the transformation in Christian iconography which had been completed by the beginning of the fifteenth century had its ultimate origin in the apocryphal "Lives of Jesus and Mary," which issued from Franciscan sources, and that these writings also inspired the "Mysteries" of the fourteenth century; but he shows that the earlier changes in the representations of the Passion in French art were directly borrowed from Italy, and not from the "Mysteries."

The "Hours" of Anne of Brittany. — In *Gaz. B.-A.* II, 1909, pp. 177-196, F. DE MÉLY attacks the attribution of the miniatures of the book of Hours of Anne of Brittany to Jean Bourdichon, basing his argument chiefly on inequalities in the style, an entry in the accounts of the queen, which notes the payment of Jean Poyet for a manuscript of about the same number of miniatures, and the signature J[ehan] P[oyet] on the first miniature, which he regards as a Grecized monogram for I[ehan] P[oyet].

GERMANY

The Saint-Bertin Altar-piece. — Two wings of the Saint-Bertin altar-piece now in the Berlin Gallery have been attributed to Memling and again to Simon Marmion. From documentary evidence, as well as the resemblance of the pictures to certain miniatures in the *Education of the Prince*, the manuscript No. 5104 in the Library of the Arsenal, P. DURRIEU concludes that the Berlin panels must be assigned to Jean Hennecart, who is undoubtedly the author of the miniatures. (*Chron. Arts*, 1909, pp. 216-218.)

Meister Hans Seyfer of Heilbronn. — A reconstruction of the life and work of Meister Hans Seyfer of Heilbronn (d. 1509), the author of the famous group (now destroyed), of the Mount of Olives at Speyer, and now recognized to be the creator of the high altar in the Kilians-kirche at Heilbronn, is given by M. VON RAUCH in *Mh.f. Kunstw.* II, 1909, pp. 503-528.

Benedict Dreyer. — *Jb. Preuss. Kunsts.* 1909, pp. 271-281, contains a résumé of the work of Benedict Dreyer, a wood-sculptor of Lübeck in the early sixteenth century, with a catalogue of his works.

The Chronology of Grünewald. — H. A. SCHMID tabulates the principal works of Grünewald in chronological order as follows: 1505, The Crucifixion

in Basel; *ca.* 1509, the Frankfort pictures and the altar-piece in Colmar; in his later period, the altar in Aschaffenburg, the Madonna in Steppach, and the Freiburg altar-piece wing; *ca.* 1522, the Crucifixion and Christ bearing the Cross, in Karlsruhe; 1524-1525, the predella in Aschaffenburg, and the Mauritius and Erasmus in Munich. The pictures for Mainz cathedral seem to have been done in part before 1525. He died about 1529. (*Rep. f. K.* XXXII, 1909, pp. 412-414.)

GREAT BRITAIN

A Minerva by Cellini.—A bronze statuette representing Minerva (Fig. 7) is published in *Burl. Mag.* XVI, 1909, pp. 40-49, by F. W. LIPP-

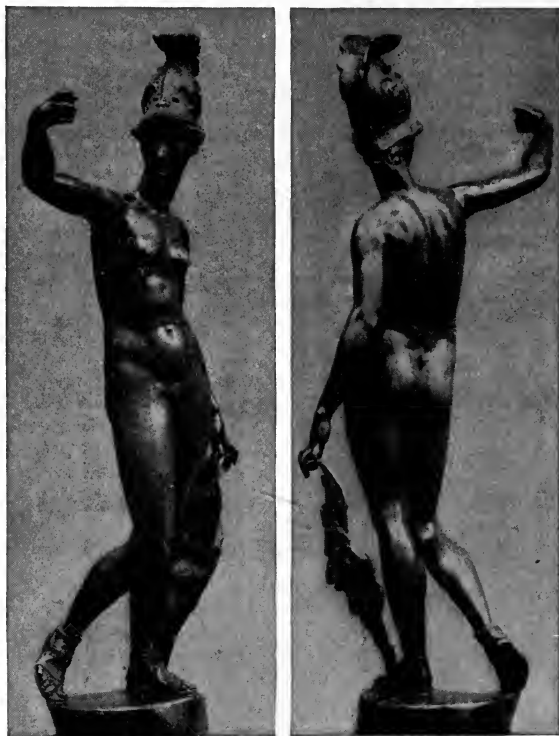


FIGURE 7. — MINERVA BY CELLINI.

MANN. He assigns it to Benvenuto Cellini on the ground of its resemblance to many of his figures, and particularly to the Minerva on the base of the Perseus monument at Florence. The editor adds a note to Lippmann's article, pointing out that Cellini was commissioned by Francis I to model twelve silver statues of divinities to serve as candelabra. Only one was completed, but Cellini speaks of having done the wax models for four, Jupiter, Juno,

Apollo, and Vulcan, and the Minerva may have been modelled at the same time. The statuette is in private possession in London.

The Judgment of Solomon. — The Judgment of Solomon, well known since its attribution to Giorgione by Herbert Cook, is assigned to Catena by R. E. FRY in *Burl. Mag.* XVI, 1909, pp. 6-9, on the ground that the color-scheme and types are identical with those of Catena's works, particularly the Supper at Emmaus at Bergamo, and the Adoration of the Shepherds in Earl Brownlow's collection.

AMERICAN ARCHAEOLOGY

A Cast in the Smithsonian. — In *American Anthropologist*, N. S. II, 1909, pp. 348-358, J. WALTER FEWKES discusses the origin of a hitherto undescribed cast in the Smithsonian collections and its identification. The original is No. 12017 in the Academy of Natural Sciences of Philadelphia. It is a human kneeling figure thirteen and a quarter inches in height and carries a peculiar "pedestal" or "canopy" on its head. From the presence of this "canopy" the carving of the face, the form of the ears and their appendages, the enlargements on the arms and the character of the backbone, and for other reasons, the author concludes that its characteristics are those of the Antillean or Tainan culture. It is possible that the "canopy" was a "Tabla," on which were placed offerings for the idol beneath it.

The Dance in Hawaii. — In *Bulletin 38* of the Bureau of American Ethnology (288 pp.; 24 pls.; 3 figs.), N. B. EMERSON discusses the unwritten literature of Hawaii and the sacred songs of the *hula* or dance. It is in general an extended contribution to our knowledge of Polynesian ethnology. The words and music, the dances, the poses and gestures, the symbolism and the history and traditions of the Hawaiian ceremonies are set forth at length and descriptions given of the musical instruments used. Of interest perhaps to classical archaeologists in music is the paragraph on page 148: "With the assistance of a musical friend it was found that the old Hawaiian tuned his strings with approximate correctness to the tonic, the third and the fifth," and the following comparison that the author makes with the method of tuning proposed by Aristoxenus.

Putnam Anniversary Volume. — A volume presented to Professor Frederick Ward Putnam, of Harvard University contains the following articles: Pp. 1-42, A. L. KROEBER discusses 'the Archaeology of California,' describing the southwestern, the northwestern, and the central cultures. He establishes two types of comparatively ancient pottery. Pictographs are comparatively rare. The writer believes that man lived in California at a very remote period. — Pp. 43-82, J. WALTER FEWKES discusses 'Ancient Zuñi Pottery.' The collection on which the study is based is the Hemenway Collection in the Peabody Museum in Cambridge. The conclusion reached is "that the ancient culture of the Zuñi valley was almost identical with that of the rest of the Little Colorado drainage, implying that the modern Zuñi culture contains elements due to acculturation from the north and north-east." — Pp. 83-101, CHARLES C. WILLOUGHBY discusses the 'Pottery of the New England Indians.' He distinguishes three divisions: the archaic Algonquian, the later Algonquian, and the Iroquoian. The antiquity of the first is considerable; the vessels have a pointed base for use in inserting

the vase into soft earth; the Iroquoian vessels were furnished with rims suitable for suspension and with rounded bases; the later Algonquian type was a combination of the older and of the Iroquoian. Numerous remains of the Iroquoian type in Vermont in the Champlain drainage basin point to an occupancy of that region by Iroquoian tribes. — Pp. 102-125, WILLIAM C. MILLS discusses the 'Seip Mound.' The group of earthworks of which the Seip Mound is a part is situated in Ross County, Ohio. It was a monument to the dead erected on the site of a charnel house, in which burials were made of cremated bodies. Some uncremated burials of a less carefully prepared type were found at a higher level in the mound. Intertribal trade is shown by the finding of copper from the Lake Superior region, ocean-shells and alligator teeth from the South, and mica from North Carolina. The builders of the mound were pre-Columbian and "belonged to the highest culture of aboriginal man in Ohio." — Pp. 126-136, CHARLES W. MEAD discusses 'The Fish in Ancient Peruvian Art.' Designs in fish-form occur in all the arts of the prehistoric peoples of Peru, on textiles, pottery, and gourds. They vary from the fairly realistic to the extreme of conventionalism, and occur in various combinations. No historical sequence of conventionalization is attempted. The author says "that the theory of development by degeneration seems the most natural one." — Pp. 137-150, WARREN K. MOOREHEAD contributes a 'Study of Primitive Cultures in Ohio.' He distinguishes three cultures: the Glacial Kame Culture, the Hopewell Culture, and the Fort Ancient Culture. The first belonged to an early people who used the mounds of glacial gravel for burial places; the second was peculiar to a tribe or tribes, possibly of southern origin and brachycephalic and of a sedentary nature; the third is of uncertain origin and belonged to a people with long heads. Both the Hopewell and the Fort Ancient peoples built elaborate earthworks which were probably the result of a long process of development. — Pp. 151-190, MARSHALL H. SAVILLE discusses 'The Cruciform Structures of Mitla and Vicinity.' He describes the explorations of five cruciform structures at or near Mitla, Oaxaca, Mexico. Decoration of the walls in mosaics, the pattern of which is formed by projecting stones, is a feature; much of this has been defaced, possibly by the Indians themselves, "who have a belief that stones or fragments taken from the buildings will, sooner or later, turn to gold." The writer connects the form of the cross with the worship of Quetzalcoatl, proving "the widespread range of the Nahuatl pantheon." — Pp. 191-195, GEORGE BYRON GORDON discusses 'Conventionalism and Realism in Maya Art at Copan, with Special Reference to the Treatment of the Macaw.' Two figures representing the head and especially the beak of this bird are given; the first, from Stela B, showing a strong tendency to exaggerate, and the other, from the Hieroglyphic Stairway, being a much more successful attempt at realistic portrayal; the stairway represents to the writer an attempt to get away from the trammels of tradition and conventionalism. — Pp. 196-252, GEORGE H. PEPPER discusses the 'Exploration of a Burial-Room in Pueblo Bonito, New Mexico.' Though the primary purpose of this room may not have been that of burial, the amount and value of the jewelry and other objects found with the skeletons point to the rank, probably ecclesiastical, of those buried within the walls. Among the articles found were wooden flageolets, "ceremonial sticks" of

differing forms, jars and bowls of pottery, and pendants and beads of turquoise. Noteworthy is a cylindrical basket, which, as restored (pl. IV, 1), is six inches long, and three inches in diameter, covered with a mosaic of turquoise. The burials discovered date from the highest development of the aesthetic arts of the inhabitants of this famous Pueblo in the Chaco Cañon. — Pp. 253-267, ALICE C. FLETCHER discusses 'Tribal Structure: a Study of the Omaha and Cognate Tribes.' Descent in the Omaha gens was traced only through the father; but it was through the mother that the child extended his kinship beyond the gens into that of a great community. — Pp. 268-298, CHARLES P. BOWDITCH discusses 'The Dates and Numbers of Pages 24 and 46 to 50 of the Dresden Codex,' and finds that the break in the Dresden Codex is not a necessary assumption, in this differing from the conclusions of Förstemann; in certain of the intricate numerical calculations of the calendar system he finds himself at variance with previous results. — Pp. 299-343, ALFRED MARSTON TOZZER discusses the 'Religious Ceremonials of the Navaho.' The Navaho, according to their own legends, obtained much of their culture from the cliff-dwellers found inhabiting the pueblos now deserted; as the present Pueblo peoples are probably descended from those cliff-dwellers, the culture of the extant pueblos is an inheritance, while that of the Navaho must be considered in some part a borrowing. After the first borrowing, however, the Navaho showed great originality in development; this is especially seen in the famous sand paintings where all, except the bare idea of making pictures in different colored sand, was their own. — Pp. 368-384, ZELIA NUTTALL discusses a 'Curious Survival in Mexico of the Use of the Purpura Shell-fish for Dyeing.' The writer found at Tehuantepec a survival of the practice of extracting dye from a species of sea-snail allied to the classical murex of the Mediterranean. This adds one more to the list of resemblances between the ancient civilizations of the eastern and western worlds, and the writer sees justification at least for those who prefer the theory of contact to the theory of psychic unity for the origin of the higher American civilizations. — Pp. 385-394, PLINY EARLE GODDARD discusses 'Gotal, a Mescalero Apache Ceremony.' An account of this ceremony relating both to female adolescence and to creation-traditions was obtained from Trias, the last priest of the chief rites of the ceremony in 1906. Numerous songs were sung and ceremonies in which pollen plays a large part were accomplished. — Pp. 395-404, S. A. BARRETT discusses 'The Cayapa Numeral System.' The Cayapa Indians of northwestern Ecuador count by using a series of basal numbers; these are 1, 2, 3, 5, 10, 20, and 100; the last serves also for the thousands. — Pp. 405-426, ALES HRDLÍČKA discusses the 'Stature of the Indians of the Southwest and of Northern Mexico.' The writer presents statistical information about the stature and also the cephalic indices of many Indian tribes. The statistics do not bear out any theories of the influence of climate on stature; heredity and food-supply appear to be the strongest determining influences. — Pp. 427-460, FRANZ BOAS presents 'Notes on the Iroquois Language.' — Pp. 461-476, ROLAND B. DIXON presents the 'Outlines of Wintun Grammar.' — Pp. 477-486, JOHN R. SWANTON presents a 'New Siouan Dialect.' These are linguistic monographs dealing with three examples of linguistic stocks independent each of the other. They are illustrated with texts and paradigms. — Pp. 487-520, HARLAN I. SMITH discusses 'Prim-

itive Industries as a Normal College Course.' The author describes in detail a course of lectures on the evolution of industries given recently in the Department of Domestic Art in the Pratt Institute in Brooklyn.—Pp. 521-544, GEORGE A. DORSEY describes 'A Visit to the German Solomon Islands.' Both natives and landscapes of these "Cannibal Islands" are more pleasing than one would naturally expect.

The book contains also the following articles not connected with American Archaeology: Pp. 344-367, 'Certain Quests and Dates,' by CHARLES PEABODY; pp. 545-566, 'The Pillars of Hercules and Chaucer's "Trophee,"' by G. L. KITTREDGE; pp. 567-583, 'The Irish Practice of Fasting as a Means of Dstraint,' by F. N. ROBINSON; pp. 584-600, 'Dusares,' by C. H. TOY.—Pp. 601-627, FRANCES H. MEAD presents a bibliography of the works of Professor Frederick Ward Putnam. It contains 404 titles, ranging in date from 1855 to 1909; in addition is a list of his Editorial Labors.

[*Putnam Anniversary Volume. Anthropological Essays presented to Frederick Ward Putnam in honor of his seventieth birthday, April 16, 1909, by his friends and associates.*—627 pp.; portrait; 41 pls.; 57 figs. Lex. 8vo. New York, 1909; G. E. Stechert & Co.]

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1909

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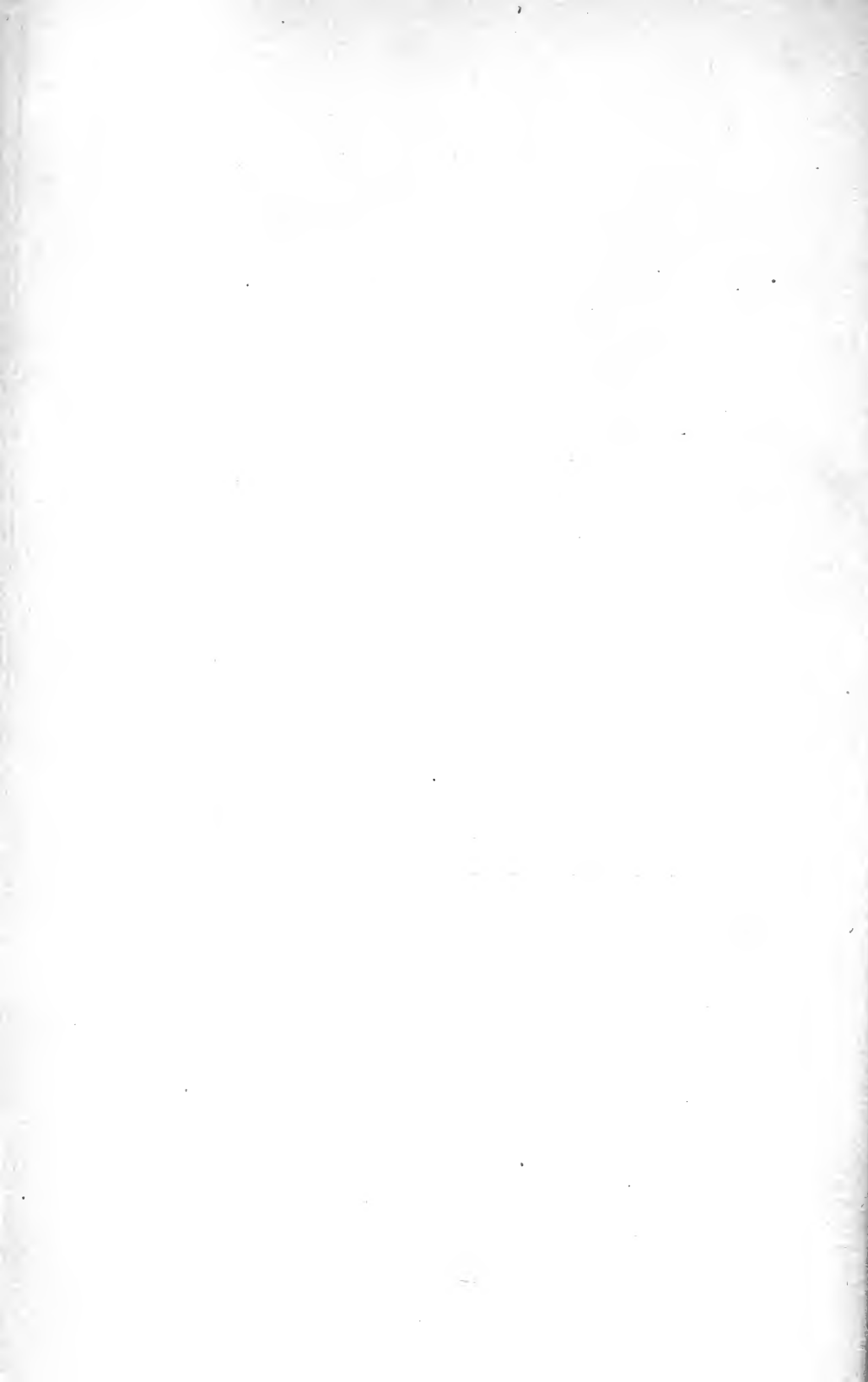
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STRUCTURAL NOTES ON THE ERECHTHEUM

THE following notes on the Erechtheum are in continuation of the article on the *Metopon* in this JOURNAL, XII, 1908, pp. 184-197. There the form of the wall at the southwest corner was shown to the height of the epistyle, but the details of the epistyle itself were considered only tentatively. It is now proposed to reconstruct the epistyle at this corner and to discuss certain items in the building account of 408/7 B.C., which help to confirm this reconstruction.

Figure 1 shows in light lines the plan of the *epikranitis* course and of the capitals of the four columns on the western

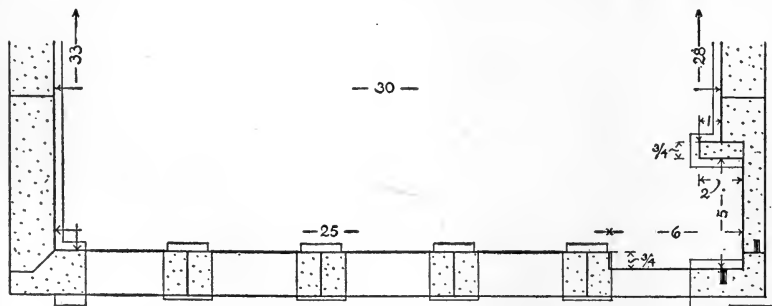


FIGURE 1.—SOFFIT OF EPISTYLE AT THE WEST END.

wall; the heavy lines represent the soffit of the epistyle at the west end of the building. Except for the two blocks next to the southwest corner, the epistyle was of the width which is normal for this course in the building—about two Attic feet.¹ That the south end of the corner epistyle block was of the form indicated in the drawing is shown by two dowel holes in the upper surface of the corner block of the *epikranitis* upon which the epistyle block rested. The northern end of this epistyle

¹ The word *foot* in this article denotes the Attic foot = 0.328 m.

block, we may safely assume, followed the lines of the capital beneath it, and had the normal width. Similarly, the epistyle block next to the corner on the south side had the shape indicated in Figure 1, for we are certainly justified in assuming that its form would have followed the lines of the *metopon*. Otherwise the capital of the *metopon* would have appeared as an awkward and meaningless projection from the wall. Apart from the special features in this corner of the temple, there is no reason to suppose that the epistyle showed any irregularities in its general design; it undoubtedly ran around the entire wall of the western part of the temple, which formed one great room some 30 feet high. The cross-wall running north and south which divided this room reached only as high as the bases of the columns on the western wall and had no connection whatever with the epistyle.¹

The accounts of expenditures upon the temple for the year 408/7 B.C. show that money was paid out for the decoration of the interior epistyle, and the question naturally arises to what portion of the epistyle reference is made, whether to that already spoken of in the western part of the building or to the epistyle of the Eastern Cella. The words of the inscription are as follows:

408/7 B.C., Sixth Prytany

Michaelis, *Arx*, App. Epig. 28 a, Col. I, ll. 4-24 and 42-50

Lines 4-24:

Τὴν | ὀροφὴν κατιστᾶσιν. τὴν καμπ¹⁵ύλην σελίδα εἰς ἔδραν καὶ τὰς ἄλλας
ἐπαγαγούσιν εἰς ἔδραν ἐκάστην, Μάνιδι κ.τ.λ. . . .

Ἰκρίώματα καθελοῦσιν τὰ | ¹⁵ἀπὸ τῶν κίωνων τῶν ἐν τῇ προστάσει, ἐξ
ἀνδράσιν, Τεύκρος, κ.τ.λ. . . .

Ἰκρίω²²σας τοῖς ἐνκαυαῖς ἐκ τοῦ | ἐντὸς ὑπὸ τὴν ὀροφὴν, Μάνιδι κ.τ.λ.

Translation:

For laying the ceiling. For setting in place the bent beam and the other main beams, to Manis, etc. (names of workmen and sums paid).

For taking down the scaffolding from the columns in the porch, to six men, Teukros, etc.

For putting up a scaffolding for the painters in encaustic in the interior beneath the ceiling, to Manis, etc.

¹ The restoration of this wall in Jahn-Michaelis, *Pausaniae Descript. Arc. Ath.*, is incorrect.

Lines 42-50:

ἐγκανταῖς. τὸ κυμάτιον ἐγκέαντι τὸ ἐπὶ τῷ ἐπιστυλίῳ τ⁴⁵ ἑντός, πεντόβολον τὸν πόδα ἕκαστον, μισθωτῆς Διονυσόδωρος ἐμ Μελίτῃ οἰκῶν, | ἐγγυητῆς Ἑρακλείδης Ὁῦθεν : ΔΔΔ : κεφάλαιον ἐγκανταῖς | : ⁵⁰ ΔΔΔ :

Translation :

To painters in encaustic. For painting the moulding on the inner epistyle, at 5 obols a foot, contractor Dionysodoros living in Melite, surety Herakleides of Oa, 30 drachmae. Sum total of payments to painters in encaustic, 30 drachmae.

408/7 B.C., Eighth Prytany

Michaelis, *Arx*, App. Epig. 28 c, Col. II, ll. 12-22

Ἐγκαντῇ, τὸ κυμάτιον ἐγκέαντι τὸ ἐπὶ τῷ ἐπιστυλίῳ τῷ ἑντός, πεντόβολ¹⁵ον τὸν πόδα ἕκαστον, πόδας | ἑκατὸν δεκατρεῖς, μισθωτῇ | προσαπέδομεν πρὸς ᾧ πρότερον εἶχε, Διονυσოდώρῳ ἐμ | Μελίτῃ οἰκοῦντι, ἐγγυητῇ²⁰ς Ἑρακλείδης Ὁῦθεν, ΔΔΔΔ†††††. Κεφάλαιον ἐγκαντῇ ΔΔ|ΔΔ†††††.

Translation :

To a painter in encaustic, for painting the moulding on the inner epistyle, at 5 obols a foot, 113 feet, to the contractor, Dionysodoros living in Melite, we gave in addition to what he had received before, Herakleides of Oa being surety, 44 drachmae, 1 obol. Sum total of payments to the painter in encaustic, 44 drachmae, 1 obol.

The references of the inscription are to wooden construction and, inasmuch as the ceiling of the Eastern Cella was built in the preceding year (Frickenhaus, *A.J.A.* X, 1906, p. 15), the ὀροφή referred to in line 4 of the first passage must denote the wooden ceiling of the western room.¹ Presumably it is the same ὀροφή which is referred to again below (l. 23). From lines 42 ff. we learn that encaustic painters, for whom a staging had been erected (ll. 21 f.), decorated the moulding on the epistyle. This encaustic work was paid for (l. 45) at 5 obols per foot, and the sum paid is 30 drachmae. One might therefore infer that precisely 36 feet had been painted. Now in the entry of the eighth prytany (l. 16) 113 feet are specified, which at the rate of $\frac{5}{6}$ of a drachma per foot would amount to 94 drachmae and 1 obol, while the sum actually paid is 44 drachmae and 1 obol. It would therefore seem that 50 drachmae

¹ The ceilings of the porches were of marble construction.

must already have been paid in the sixth and seventh prytanies. In the sixth prytany we know that 30 drachmae were paid, and it is reasonable to infer that the balance of 20 drachmae was paid in the seventh prytany, the account for which has been lost. Thus the payments of the sixth and seventh prytanies were unquestionably advances on account, and the omission in the accounts of the sixth prytany to specify the number of feet painted is therefore perfectly natural. The payment in the eighth prytany is undoubtedly final and indicates the completion of the work, and the length of 113 feet is the entire length of epistyle painted under the contract.

It has been implied above that these items in the accounts have reference to work in the western room of the building, and this is confirmed by the fact that the length of the epistyle in the East Cella was 105 feet (not 113), for that room is 30 feet wide and $22\frac{1}{2}$ feet deep.

The next point to determine is whether the length of 113 feet can be brought into harmony with the dimensions of the western room. This room is 33 feet long, east to west, and 30 feet wide. This would give an epistyle 126 feet in length, if the epistyle were regular, and the irregularities of structure in the southwest corner, which have been described above, would increase this length by about 5 feet (see Fig. 1). How then is this discrepancy to be reconciled?

In this corner there was a platform which had the width of the niche, and which was only about 11 feet below the epistyle. The latter could therefore easily have been reached by a painter from a ladder or low staging set upon the platform. No fixed scaffolding would have been necessary here as it was in the rest of the room, which was 30 feet high. To this high scaffolding reference is made in the inscription at line 21, and the material for it is probably referred to in line 14, where the removal of the scaffolding from the North Porch (*πρόστασις*) is spoken of. It is therefore reasonable to believe that the account under consideration covered only the work done from the scaffolding. That done from the platform may have been done in some earlier prytany of which we have no account. If now we assume that this platform extended toward the north as far as the first column of the west façade (see Fig. 3), the

portion of the epistyle to be painted from the high scaffold would have been 117 feet.¹ This measurement, however, is still 4 feet greater than that called for by the inscription

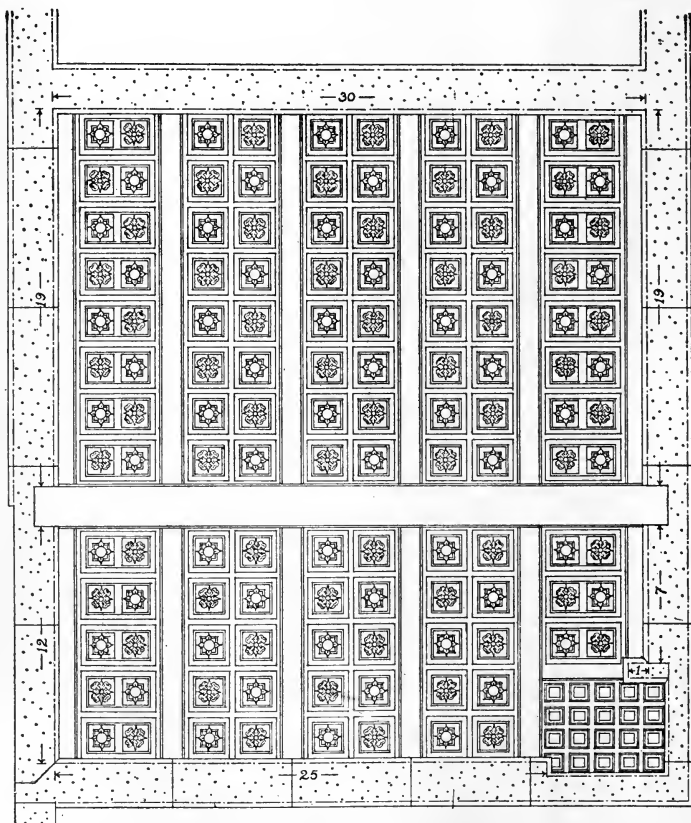


FIGURE 2. — CEILING OF WESTERN CHAMBER, RESTORED.

(113 feet), but there is a way in which this discrepancy may be explained.

In the inscription (lines 5-6) there is mention of a *καμπύλη*

¹ West side	25 feet
North side	33 feet
East side	30 feet
South side	28 feet
East side of <i>metopon</i>	1 foot

117 feet. Cf. Fig. 1.

σελῖς. Σελῖς is the regular term for a ceiling beam, and *καμπύλη* must mean that this particular beam, which is carefully distinguished from the ordinary ones by the words of the inscription, deviated in its form from a straight line. Mr. G. P. Stevens has made the highly probable suggestion that a beam which might thus be described ran across the building from north to south (see Fig. 2). The bent effect would have been produced by the addition of struts at the walls, which, indeed, the greatness of the span really calls for, and, as a matter of fact, Mr. Stevens found evidence in the south wall that a bracket to support such a strut once existed.¹ The north wall at the corresponding point is too much damaged to yield any evidence. This *καμπύλη σελῖς*, which, together with the epistyle, carried the beams of the ceiling (these ran east and west), was of course at the same height as the epistyle, and this latter would therefore have been interrupted (see Figs. 2 and 3) where the ends of the beam were inserted. The evidence for the bracket gives the approximate width of the beam as 2 feet, and so in reckoning the extent of the painted moulding on the epistyle we must deduct 2 feet on the north side, and 2 feet on the south. We thus get 113 feet, the length which the accounts call for. We obtain, furthermore, confirmation for Mr. Stevens's theory of the *καμπύλη σελῖς* and for the conclusions of the article on the *Metopon*.

The probable appearance of the "bent beam" is shown in Figure 3, a restoration of the southwest corner of the building. This drawing illustrates also the other peculiar features which were discussed in the previous article, — the open intercolumniation, the platform below the niche, the *metopon* or pilaster which terminated the niche to the east, and the treatment of the

¹ In the sixth course from the top is a stone, the third from the *metopon*, which shows *anathyrosis*, implying that another block about 2 feet wide abutted against it. This was held in place by H clamps, the cutting for one of which is preserved. Directly above this in the fifth course the face of the wall is cut back slightly for the insertion of the strut. It is a curious fact that the long beam under discussion was not directly over the cross-wall mentioned on page 292, but was one foot farther west. The peculiar position of this beam was almost certainly due to the arrangement of the ceiling coffers, a matter which cannot now be fully discussed. The Roman repairers who built a cross-wall which reached to the ceiling placed it in a line with this beam.

epistyle at the corner. The restoration of the wooden coffered ceiling (shown also in plan in Fig. 2) was worked out after these notes were written, and the discussion of the evidence for

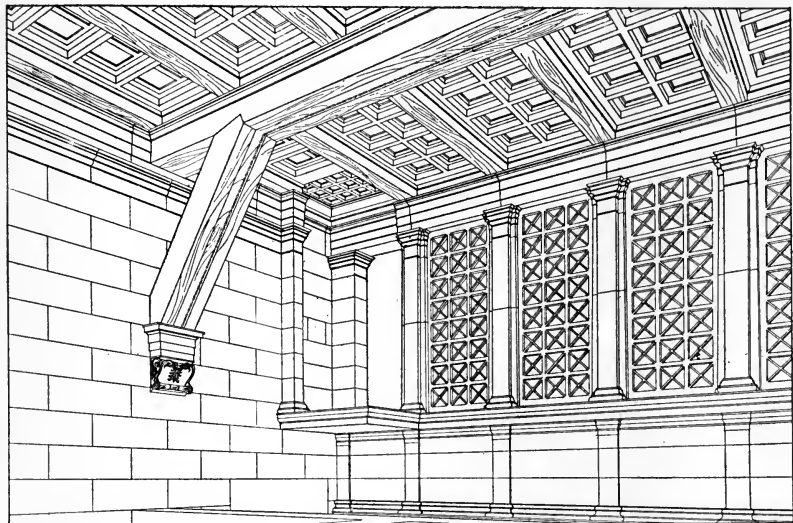


FIGURE 3.—RECONSTRUCTION OF SOUTHWEST CORNER, SHOWING *Metopon*, NICHE, AND "BENT BEAM."

it is reserved for another article which will deal also with the ceiling of the East Cella. If the "bent beam" be accepted, the arrangement with four main beams running east and west (one over each column of the west façade) is the most natural one.

B. H. HILL.

ATHENS.

THE ROOFED GALLERY ON THE WALLS OF ATHENS

[PLATE VI]

THE most recent discussion of the well-known decree relating to the repairs of the fortification walls of Athens in 306 B.C.¹

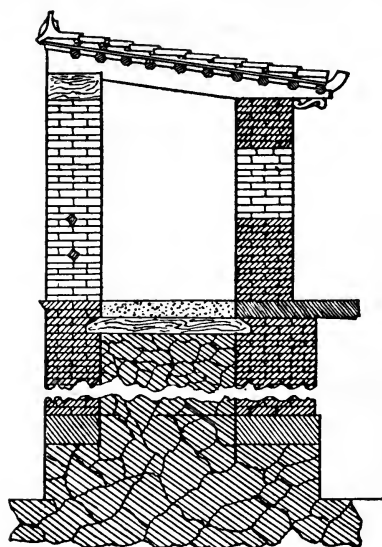
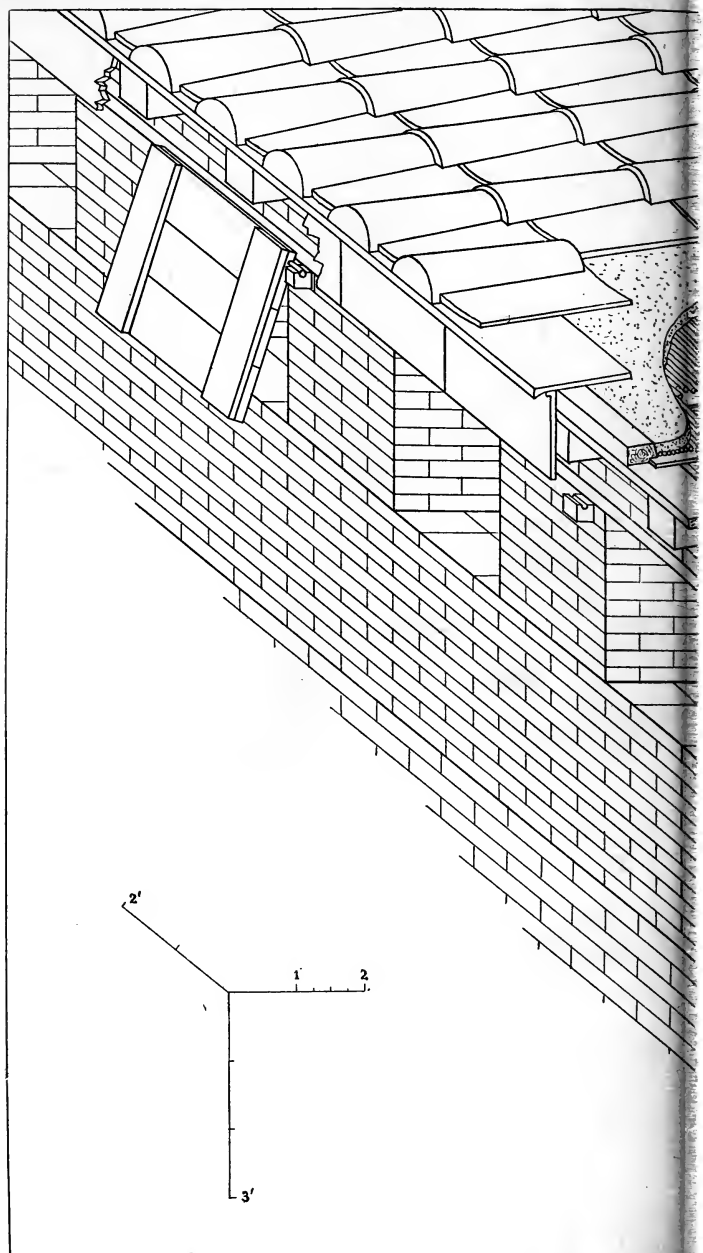


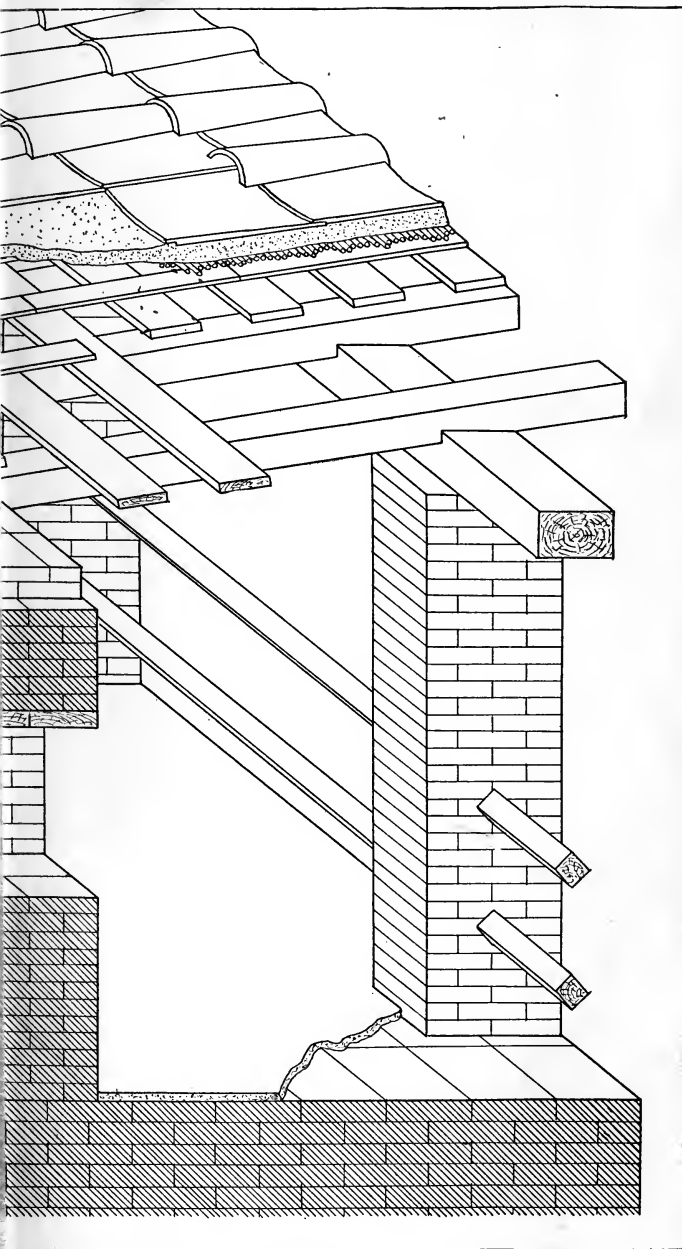
FIGURE 1. — MÜLLER'S RESTORATION
OF THE GALLERY.

concerns itself less with the architectural than with the historical and topographical problems raised by the inscription, and Dr. Frickenhaus has not attempted a restoration of the roofed gallery along the top of the walls. Neither of the two previous attempts at such a restoration is satisfactory. That of Müller (Fig. 1) is correct in its main features, but wrong in a number of details. Choisy (Fig. 2) writing half a century later was able to correct some of these errors; but by misinterpreting certain statements in the text and trusting too much to his own

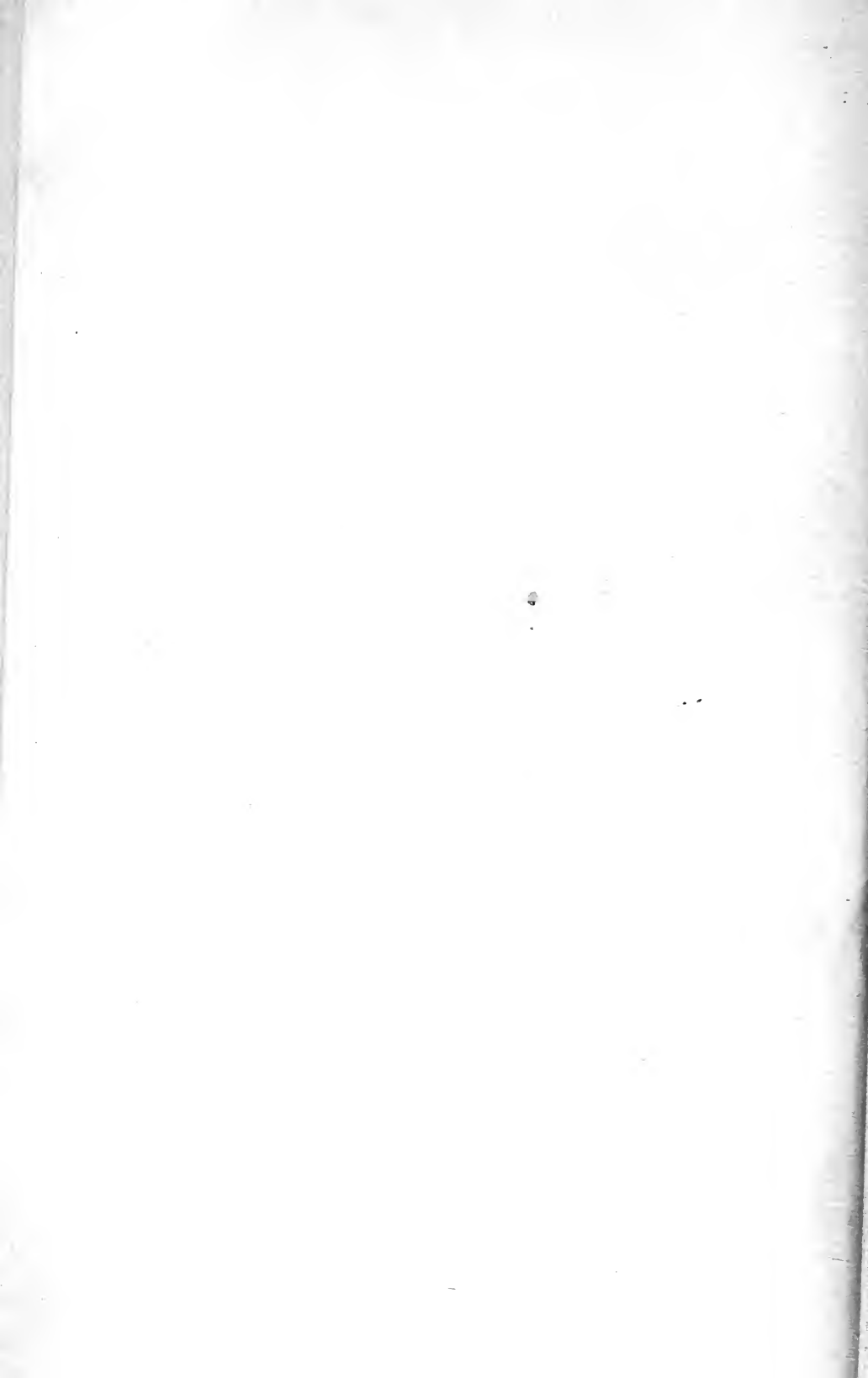
¹ Frickenhaus, *Athens Mauern im IV Jahrhundert*, pp. 29-43. Previous discussions of the inscription are: Franz, *Bull. dell' Inst. Arch.*, 1835, pp. 49 ff., from a copy by Pittakis. K. O. Müller, *De munimentis Athenarum*, Göttingen, 1836, from a copy by Ross. (Reprinted without the plates in *Kunstarch. Werke*, IV, pp. 88 ff.) Rangabé, *Antiquités helléniques*, II, 771. Leake, *Topography of Athens*, I, Appendix XX, pp. 607 ff. Ussing, *Zeitschr. für Alt. Wesen*, 1848, p. 49. Koehler, *I.G.* II, 167, from a new copy. The same, *Ath. Mitt.* V, 1880, p. 276, note on the date of the inscription. Choisy, *Études épigraphiques*



RECONSTRUCTION OF THE GAL



ALLS OF ATHENS. ISOMETRIC



imagination he has produced a restoration which Fabricius not unjustly characterizes as a step backward rather than an advance upon Ottfried Müller.¹

In view of the importance of the passage as an architectural document a new attempt to obtain a more accurate picture of the structure seems justified. The present discussion will be limited to the architecture of the gallery, which may be conveniently treated as a subject by itself. The text of the passage, fortunately contained in the least mutilated part of the inscription, is as follows:—

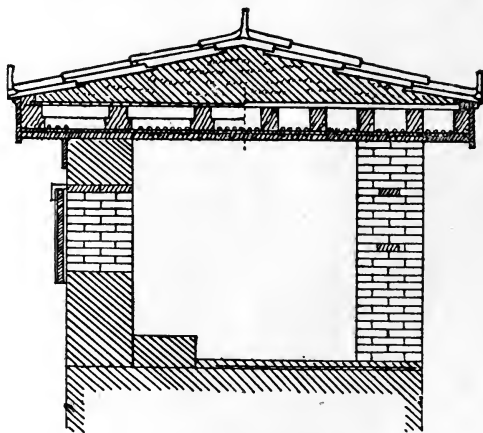


FIGURE 2.—CHOISY'S RESTORATION OF THE GALLERY.

— . . . καταστεγάσει δὲ κα[ῖ] τὴν πάροδον⁵³ [τοῦ κύκλ]ου τοῦ περὶ
 [.....τοῦ] διατειχί[σμ]α[τ]ος καὶ τοῦ διπύλου τοῦ ὑπὲρ τῶν
 πυλῶν⁵⁴ [καὶ τὰ μα]κρ[ᾶ τ]είχη, ἐπα[νε]λὼν τοῦ π[ε]ριδρόμου τὰ
 55 γε[ῖ]σ[α] καὶ τῶν ἐπάλξεων πάντα· ὅσα (δ) ἂν ἦι π[ι]⁵⁵ [ε]πονη]κότα
 πλέον ἔξ δακ[τ]ύλων πλινθοβολήσῃ, δ[ι]α[λ]είπων θυρίδας δ[ι]πλίν[θ]-
 οὺς, ὕψος ποιῶ⁵⁶ [ν τοῦ μ]ε[ν] ἐπαλξίου τρεῖς πόδας, τ[ῆ]ς δὲ θυρίδος δέκα
 στοίχους· καὶ ἐπιθήσῃ ὑπερτόναυα ξύλ⁵⁷ [ινα γο]μφώσας διάτοιχα πάχος
 στο[ι]χαιᾶ, μῆκος ὀκτώποδα· ὑποθήσῃ δὲ καὶ κύβους τοῖς ὑπ[ε]ρ⁵⁸ [ε]ρτο]-
 ναίοις καὶ ἐπιπλινθοβολήσῃ ὕψος [ε]ξ στοίχους. οἰκοδομήσῃ δ[ε] κ[αὶ] ἐκ
 τοῦ ἐνδοθεν⁵⁹ [στ]όχους οὐ μὴ εἰσιν οἰκοδομη[μ]ένοι διπλίνθους δι[α]λεί-
 60 ποντας ἐπτά πόδας, καὶ ἐγκατοικ[ε]⁶⁰ [οδ]ομήσῃ στρωτήρας [δ]ύο διαλείπον-
 τας τ[ρ]ί⁶¹ ἡμιπόδια, ὕψος ποιῶν τοῦ στόχου ὥστε ἀνορθο[ί]ς⁶¹ [ὑς] εἶναι εἰς
 τὸ εἶσω· καὶ ἐπ[ε]θήσῃ δοκοὺς εἰς το[ῦ]ς στ[ό]χους. οὐ μὴ κατεστ[ε]γ[α]

sur l'architecture grecque, pp. 43 ff. Fabricius, *Berl. phil. Wochenschr.* IV, 1884, pp. 1118 ff., review of Choisy's work. Wachsmuth, *Die Stadt Athen*, II, pp. VI ff.

¹ Choisy's restoration is accepted by Perrot and Chipiez, *Histoire de l'Art*, VII, p. 387 and Fig. 207. Durm also reproduces Choisy's drawing (*Handb. der griech. Arch.*³, Fig. 167, p. 192), but in his text assents to the criticisms of Fabricius.

- σται, στεγάσει δοκί⁶²[σιν] καὶ ἐπιβλή[σ]ιν τι[θ]εῖς ἐναλλάξ, ἡ στρωτῆρ-
 σιν περ[ι]ενκεντρίσει δι[αλ]είπων [τ]ρεῖς παλ⁶³[αυ]στ]ὰς ἐκ τοῦ ἐπάνωθεν.
 καὶ διοικο[δ]ομήσας ἐπὶ τοῦ το[ι]χου ἀνατεμεῖ τὸ γ[ε]ί[σ]ηπό[δ]ισμα
 ὀρθ⁶⁴[ὸν π]αρὰ πλευρὰν ὑπερέχον μὴ ἔλατ[τ]ον τρί' ἡμιπό[δ]ια, καὶ ἐπι-
 65 κρούσει ἀκρογείσιον ποιῶν ὁ⁶⁵[ρθό]ν κατὰ κεφαλὴν, πλάτος ἐπτά δακτύ-
 λων, πάχος παλα[σ]τῆς, παρατεμῶν ἐκ τοῦ ἔνδοθεν πάχο⁶⁶[ς ἰμ]άντος καὶ
 τὸ μέτωπον ποιήσας πρὸς τὴν κα[τ]αφορὰ[ν]. ἐπικρούσε[ι] δὲ καὶ εἰς τὸ
 ἐντὸς ἰμ[αί]ον[τ]ας διαλείποντας τρεῖς παλαστὰς, πάχος δακτύλου, [π]λάτος
 πέντε δακτύλων, ἥλοις σιδη[ρ]οῖ[ς]. καὶ [ἐ]πιβαλὼν [κ]άλαμον λελαμμέ-
 νον, ὑποβαλ[ὼν] λοβό[ν] ἢ κάλαμον, δο[ρ]ώσ[ε]ι πηλῶι ἡχυρω[μέ]ν[ω]ι
 πάχος τριδακτύλω[ι]. καὶ κεραμώσει Λακω[νικῶ]ι κερ[ά]μωι τοῦ μὲν
 70 κύκλου πάσαν τὴν π[α]ροῖ⁷⁰δον, τῶν [δὲ] μακρῶν τείχων τὰς ἡγεμόνας οὐ
 μὴ εἰσιν κείμεναι, [τ]ιθεῖς ὅλας ἐν πηλῶι ὀρ[θὰ πα]ρὰ⁷¹ πλευρ[αν].
 καὶ κ[α]λυπτῆρ[ι]εῖ, τιθεῖς τοὺς καλυπτῆρας ὅλους ἐν πηλῶι. καὶ
 ἀπογειώσ[ε]ι ἐκ⁷² τοῦ ἔξωθεν γείσοις Κορινθίους, ἀναξῶν το[ῦ]ς
 [ἀ]ρ[μ]οῦς ἀρμόττοντας καὶ τιθεῖς ὀρ[θὰ παρὰ π]λευρὰν καὶ κατὰ
 κεφαλὴν. καὶ ποιήσας κα[ν]θήλιον .. δωρό[σ]ει πηλῶι ἡχυρωμένω-
 [ι]⁷⁴υτρεχές ὕψος τετ[τ]άρων στοίχων. - - -

The text differs in some details from that of Koehler in the *Corpus*. The more important variants are given here. Line 53. τοῦ περὶ [τὸ ἄστει ἀνευ ? το]ῦ Koehler. Wachsmuth places a comma after πυλῶν. Line 54. [καὶ τὰ μα]κρ[ά] Frickenhaus. [ἐπὶ ? τὰ μα]κρ[ά] Koehler. ἐπα[νε]λῶν Frickenhaus. ἐπ[ι-βα]λῶν Koehler. Koehler places no punctuation mark after πάντα. Wachsmuth places a comma after γείσα and after πάντα. ὅσα (δ) ἂν ἡ π[επονη]κότα Lattermann, on the evidence of a Delian inscription, *B. C. H.* xxxii, 1908, p. 296. ἐ[ξεστη]-κότα ? Koehler, Frickenhaus. Line 60. ἀνορθο[ύς] εἶναι earlier editions. ἀνορθό[ν θ]εῖναι Frickenhaus. Line 70. ὀρ[θὰ πα]ρά Koehler. ὀπ[ὰς πα]ρά Frickenhaus, but without explanation. Line 72. [ἀ]ρ[μ]οῦς Schoene, *Philonis mech. synt.* 80, 36, followed by Frickenhaus, [κ]ρ[ι]οῦς earlier editors. Line 73. [ἐκ]δωρό[σ]ει Rangabé, Frickenhaus. [-ι διδάζωμα ἰθ]υτρεχές Müller. [-ι πλάτος εὐθ]υτρεχές Frickenhaus.

Translation :

. . . And he shall roof the gallery of the circuit wall around [the city (?) —] the cross-wall and the *dipylon* above the gates [and the] long walls, removing all the cornices of the *περίδρομος* and the parapets; and wherever there is an injury measuring more than six dac-

tyls he shall lay new bricks, leaving openings two bricks in width, making the height of the parapet three feet, that of the openings ten courses of brick; and he shall lay (over the openings and upon the piers between them) wooden lintels extending through the width of the wall, fastening them with dowels, the lintels to be one course of brick in thickness and eight feet long, and he shall place below the lintels blocks (of wood), and (upon the lintels) he shall lay six courses of brick. And he shall build pillars along the inner edge (of the gallery) wherever they are not already built, two bricks in width, seven feet apart. And he shall imbed in the pillars two beams a foot and a half apart (to serve as a railing), making the pillars of such a height that the roof shall have a slope (?), and he shall lay architraves upon the pillars. And where there is no roof he shall roof the gallery with rafters and planks, placing them cross-wise, or else he shall mortise square timbers (upon the rafters in place of the planks) setting them three palms apart *ἐκ τοῦ ἐπάνωθεν*. And having built up with brick (the spaces between the rafters) upon the wall, he shall trim the front ends of the rafters so as to be vertical, making them project not less than one foot and a half from the wall, and he shall nail on a beam as a crowning member of the cornice, making it straight on top, its width to be seven dactyls, its thickness one palm; and he shall cut a rabbet in its inner face of the thickness of a sheathing plank, and its front he shall make according to the line (of the ends of the rafters). And within he shall nail on with iron nails sheathing planks three palms apart, one dactyl thick, five dactyls wide. And after laying upon the sheathing moistened rushes and under these (*i.e.* between the planks) beanstalks or rushes, he shall cover the whole with a layer of clay mixed with straw three dactyls in thickness. And he shall lay Laconian tiles over the whole gallery of the circuit wall, and shall put in place the tiles (*ῥηγυμένους*) of the long walls wherever they are not in place, laying them all in clay with their faces vertical, and he shall lay the cover tiles all in clay. And he shall cover the front of the roof timbers with Corinthian cornices, trimming the joints so that they shall fit tightly, making them true vertically and horizontally. And having set up a scaffolding he shall put on a coating of clay mixed with straw to the height of four courses. . . .

The topographical problems raised by lines 52-54 do not concern us here. It is clear that the passageway along the top of the walls (*πάροδος*) is to receive a roof in places where no such roof existed, or where it had fallen into decay. Other

portions of the wall already had a roof, as appears from the phrase οὐ μὴ κατεστέγασται in line 61. The screen-wall (περίδρομος? ¹) which ran along the top of the main wall at its outer face is to have its cornices (slabs of terra-cotta which protected the exposed top of the wall) removed, and is to be repaired or rebuilt as the case may require. The specifications for the construction of this wall, the pillars to be placed along the inner edge of the gallery, and the roof they supported are recorded in lines 55-74. Though somewhat deficient as regards measurements, they furnish enough data for the restoration shown on PLATE VI.

The arrangement of the wall and pillars indicated by the plan (Fig. 3) is practically that of Müller and Choisy. Most



FIGURE 3. — PLAN OF GALLERY.

of the dimensions which are not given explicitly in the inscription can be inferred with reasonable certainty. Thus the length of the wooden lintels, 8 feet, fixes the width of the piers between the window openings as 2 or 6 feet, since otherwise a joint would come at intervals over a window. The arrangement with piers 2 feet wide is preferable since it allows twice

¹ This word has never been satisfactorily explained. Choisy supposed it to designate an unroofed passageway, *πάροδος* being used only for the roofed gallery. But in the two places in which the word occurs it is closely connected with *ἐπαλξις*: line 54 τοῦ περιδρόμου τὰ γείσα καὶ τῶν ἐπάλξεων πάντα, and line 84 τὸν περιδρόμον καὶ τὸ θωρακεῖον καὶ τὸ γείσον. *Ἐπαλξις* is clearly the low parapet (3 feet high, line 55) behind which the defenders stood. Upon the parapet piers were erected at frequent intervals. This crenelated wall as a whole (parapet and piers) is perhaps meant by the word *περίδρομος*.

as many defenders to be massed at any point of the wall. Only one dimension of the pillars is given, but since the space between them is stated to be 7 feet, it is probable that they were 1 foot (one brick) thick and placed opposite every second pier of the outer wall, as indicated on the plan. The restoration of this wall as 2 feet (two bricks) thick may be regarded as certain, though this dimension is not stated.

In PLATE VI the bricks have been drawn as 1 foot square and $\frac{1}{4}$ foot thick, following Müller and Choisy. Vitruvius (II, iii, 3) states that the sun-dried bricks used by the Greeks were square, and distinguishes two varieties, the *πεντάδωρον*, $1\frac{1}{4}$ foot square, used for public structures, and the *τετράδωρον*, 1 foot square, used for private houses. Bricks which have been preserved in fortification walls at Eleusis, measure on an average $0.45 \times 0.45 \times 0.10$ m., or rather more than the *πεντάδωρον* of Vitruvius (= 0.41 m.). An inscription from Eleusis¹ mentions still larger bricks, *πλίνθοι . . . τριημιπόδιοι* (= 0.492 m.). But for the light structure under discussion the smaller sized bricks (*τετράδωρον*) may safely be assumed. Used in conjunction with half-bricks (*ἡμιπλίνθια*, line 74. Cf. Vitruvius, II, iii, 4, *semilateria*) they fit perfectly the dimensions of the screen-wall and the pillars. The main wall was doubtless built of larger bricks, as has been indicated in the drawing. The thickness of the main wall is nowhere indicated in the inscription, for the good reason that it varied in different parts. Existing remains of the foundations in Athens and the Piraeus show that the walls varied from 2.50 m. to 8 m. in thickness. In PLATE VI the wall has been drawn as 10 Attic feet (= 3.28 m.) thick.

The wooden lintels (*ὑπερτόναια*) are restored by Müller as one line of planks 2 feet wide. Choisy assumes two rows of planks each 1 foot wide. The wooden blocks (*κύβοι*) placed below the lintels, according to Müller, are a device to hold the planks firmly in place (cf. Fig. 4). Choisy's explanation of them, as projecting from the face of the wall on either side of each window as supports for the shutters, is improbable.

The two beams (*στροπήρες*, line 60), which are to be built into the pillars $1\frac{1}{2}$ feet apart, have in PLATE VI been placed

¹ Dittenberger, *Syll.*², 587, lines 55, 57.

near the floor as a balustrade (so Müller). Choisy, as a result of his incorrect arrangement of the roof timbers, is obliged to place these beams higher up (see Fig. 2), their function being to strengthen the pillars.

The height of the screen-wall, assuming the bricks to be $\frac{1}{4}$ foot thick, is $7\frac{1}{4}$ feet. The height of the pillars is not given explicitly, and the statement with regard to it, ὕψος ποιῶν τοῦ στόχου ὥστε ἀνορθο[ύς] εἶναι εἰς τὸ εἶσω, is obscure. Müller supposed the phrase ἀνορθὸν εἶς τι to signify that one part of a

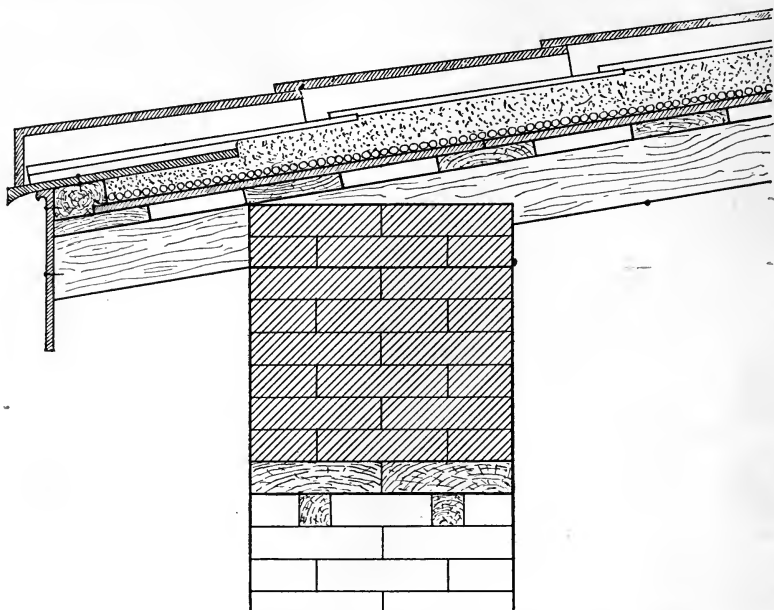


FIGURE 4.—SECTION SHOWING ROOF CONSTRUCTION.

structure is carried up to the level of another part. So here the top of the pillar is to be level with the top of the screen-wall, the latter being regarded as situated at the inner edge of the main wall. By making the beam (δοκός) laid upon the pillars as an architrave unnecessarily large (2 feet wide, 1 foot high), and by making the gallery one foot narrower than is done in the present restoration, he is able to give the rafters a sufficient slope (see Fig. 1). This interpretation of the phrase was adopted by Choisy since it fitted well with his erroneous

restoration of a roof with a slope in both directions (see Fig. 2). Wachsmuth proposed as a solution of one of the difficulties the emendation εἰς τὸ ἔξω. Frickenhaus restores ὥστε ἀνορθοῦ[ν θ]εῖναι, but without comment. Though I am unable to give a satisfactory interpretation of the sentence, I have attempted in the translation to suggest its general sense, on the theory that the prefix in ἀνορθός has a privative force, the word implying that the top of the pillar is *not* to be in line with the top of the wall; *i.e.* it is to be at a higher level. In PLATE VI the pillar is made 8 feet high. The additional $\frac{3}{4}$ of a foot, together with the thickness of the architrave, gives the roof a rise of about 1 in 6. The rafters (δοκίδες) must have rested directly upon the top of the brick screen-wall, since no intermediate wooden member (wall-plate) is mentioned in the inscription. The explanation of the method in which they were held in place is afforded by the phrase καὶ διοικοδομήσας ἐπὶ τοῦ τοίχου (line 63), which seems not to have been understood by Müller, and is used by Choisy as evidence for his restoration of a roof with two slopes. The latter places the architraves (δοκοί) across the gallery, instead of from pillar to pillar, and the minor timbers over them. Upon this foundation he places a solid mass of clay nearly 2 feet thick in the centre, and sloping down on both sides to form a bed for the two series of tiles (see Fig. 2). But such a feature is entirely without parallels in Greek architecture and increases unnecessarily the weight of the roof. The phrase above quoted, which is the only evidence in support of this theory, can be explained in a much more simple manner. The τοίχος must be the screen-wall, and the prefix δια- suggests that the spaces on the wall *between* the rafters were to be filled with brick, the rafters being thus held firmly in place (see PLATE VI).¹

The timbers to be laid across the rafters could be either ἐπιβλήτες or στρωτήρες² according to the preference of the con-

¹ Cf. Fabricius, *l.c.* p. 1118.

² The terms ἐπιβλής and στρωτήρ as well as δοκός, δοκίς, and ἰμάς occur in the inscription Dittenberger, *Syll.*², 587. The prices paid give some idea of the relative size of these timbers: δοκός, 17 dr. (l. 62); δοκίς, 2 dr. (l. 87); στρωτήρ, 1 dr. 4 ob. (l. 63), 2 dr. 3 ob. (l. 85); ἰμάς, 1 dr. (l. 64); ἐπιβλής, $\frac{1}{10}$ dr. (l. 65). The ἐπιβλήτες here evidently have a different function. They are perhaps comparable to our "furring strips." The form ἐπιβλητοὶ occurs in line 193. The

tractor. The former were apparently planks which were laid upon the rafters (*ἐπιβάλλειν*); the latter were square beams mortised (literally: "grafted") upon them (*περιεγκεντρίζειν*). The former arrangement only is shown on PLATE VI and Figure 4. These latter timbers were to be placed $\frac{3}{4}$ of a foot apart; the additional words *ἐκ τοῦ ἐπάνωθεν* have caused trouble.¹ For the following suggestion I am indebted to

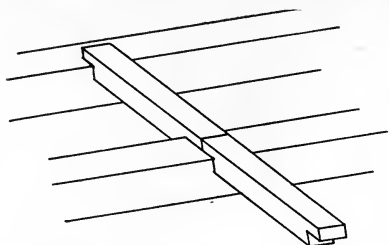


FIGURE 5. — ALTERNATIVE METHOD OF CONSTRUCTION.

Professor Fowler: "The *στρωτήρες* were to be put about [*περι-*] the *δοκίδες* by a process of mortising; in other words, the mortises were to be cut in the *στρωτήρες*, rather than in the *δοκίδες*, and the *στρωτήρες* were to be on the top (*ἐκ τοῦ ἐπάνωθεν*) of the *δοκίδες* (Fig.

5). The passage in the inscription may perhaps be rendered, 'on the top he shall mortise [the rafters] round about with beams three palms apart.' If this is correct, the words *ἐκ τοῦ ἐπάνωθεν* modify not merely the expression *διαλείπων τρεῖς παλαστάς*, but the entire clause."²

The projecting ends of the rafters are referred to in line 63 by the collective term *γεισηπόδισμα*,³ which may be taken to

whole subject of the Greek technical terms for timbers used in building, for which this inscription furnishes abundant material, needs a thorough investigation.

¹ Fabricius, *l.c.*, interprets the passage: "nach der ersteren Lösung sollen quer über diesen *δοκίδες* (*ἐναλλάξ*), also in der Längsrichtung der Mauer, schwächere Balken liegen (die deshalb *ἐπιβλήτες* heissen), nach der anderen sollen die schwächeren Balken (*στρωτήρες*) in die *δοκίδες* eingelassen werden (*περιεγκεντρίσει*), jedoch so, dass oben zwischen ihren Kopfsenden ein Zwischenraum von 3 *παλασταί* bleibt." But if the *στρωτήρες* were laid "in der Längsrichtung der Mauer," his expression "oben zwischen ihren Kopfsenden" as a translation of *ἐκ τοῦ ἐπάνωθεν* is meaningless.

² This interpretation does justice to the *περι-* of *περιεγκεντρίσει*, but the construction of the sentence is exceedingly awkward. The style of the inscription is, however, awkward at best. The provision that the *στρωτήρες* shall be *ἐκ τοῦ ἐπάνωθεν* seems superfluous, but hardly more so than the previous provision that *ἐπιβλήτες* shall be *ἐναλλάξ* relatively to the *δοκίδες*. H. N. F.

³ Also line 114, *γεισηποδίσματα*. The more common form is used in line 51, *θράνος ἢ γεισηπόους ἢ γείσων λίθινον ἢ κεραμεοῦν*. Cf. Müller, *l.c.* p. 49.

include the plank (ἐπιβλής) laid over them. They are to be sawn so as to be ὀρθὸν παρὰ πλευράν, *i.e.* their faces are to be in a vertical line. Over them is to be nailed a beam called ἀκρογείσιον, the correct explanation of which is due to Choisy. It is to be ὀρθὸν κατὰ κεφαλὴν; *i.e.* its top surface is to be parallel to the slope of the roof. Its face (μέτωπον) is to be in line with the face of the rafters.¹ The lower ends of the sheathing planks (ἱμάντες) are to fit into a rabbet cut at the bottom of its inner face.

The spaces left by the triple system of timbers (δοκίδες, ἐπιβλήτες or στρωτήρες and ἱμάντες) are to be filled by two layers of rushes, the upper layer being placed across the ἱμάντες, the lower (ὑποβαλὼν) apparently between them, resting on the ἐπιβλήτες. The whole surface of the roof is next to be covered (δορώσει, line 68²) with a layer of clay 3 dactyls thick, supported at the lower edge by the ἀκρογείσιον. As in the case of the Piraic Arsenal the tiles were imbedded in this layer of clay, a method which seems to have been generally employed in Greece for terra-cotta tiles, as holes for nails do not as a rule occur in existing specimens (cf. Fabricius, *Hermes*, XVII, 1882, p. 582). Marble tiles were probably laid directly upon the wooden sheathing, their weight being sufficient to hold them in place.

The inscription specifies that "Laconian" tiles are to be used, a variety which is also mentioned in the Eleusinian inscription, Dittenberger, *Syll.*², 587, line 188, κεράμου Λακωνικοῦ ζεύγη: Π: τὸ ζεύγος ΙΙΙΙ. Another type, the Corinthian, is mentioned more

¹ For the meaning of μέτωπον as an architectural term, see *A.J.A.* XII, 1908, p. 190. For the phrase πρὸς τὴν καταφορὰν, cf. Dittenberger, *Syll.*², 542, line 16, ἐπικύψας δὲ (τὸν λίθον ἑκαστον) κατὰ κεφαλὴν καὶ συνομαλίσας πρὸς τὴν καταφορὰν. *I.G.* XII, 2, 10, line 16, πρὸς τὴν καταφορὰν τοῦ τόπου. Dittenberger, *Syll.*², 537, line 51, κορυφαῖα . . . ὥς δὲ πέντε παλαστῶν καὶ δυοῖν δακτύλοις ἀνευ τῆς καταφορᾶς. In all these cases there is the idea of a downward slope, the first two referring to sloping ground. The upper surface of the ridge-beam (κορυφαῖος) of the Piraic Arsenal was made with a slope in both directions to suit that of the rafters. Here the face of the ἀκρογείσιον is actually to be made vertical, but its plane when considered with reference to these timbers alone (ἀκρογείσιον, ἐπιβλής, δοκίς) may be regarded as oblique.

² The meaning of this word is well known from its occurrence in the specifications for the building of the Piraic Arsenal, Dittenberger, *Syll.*², 537, line 58. Dittenberger connects it with δορά, 'hide.'

frequently.¹ The identification of these two varieties is due to Dörpfeld (*Ath. Mitt.* VIII, 1883, p. 162). The Laconian tiles were of the more primitive type, shown in PLATE VI, consisting of slightly curved pan-tiles (*imbrices*) and semicircular cover-tiles (*tegulae*). The more elaborate system with large, flat *imbrices* and bent *tegulae* was called Corinthian, either because it was invented at Corinth or because the Corinthian factories were especially famous. That such tiles were not necessarily made at Corinth appears from the second passage quoted below, note 1. The theory that the tiles used to roof the Athenian fortification walls were of the curved shape receives some support from the fact that the excavations at the base of the walls on Eetioneia brought to light a large number of such tiles bearing the inscription δημοσία Πειραιέως (*B.C.H.* XII, 1888, p. 351). For examples of this type of tiles, cf. *Olympia, die Baudenkmäler*, II, pl. 98, where tiles from the Heraeum and other examples are figured.²

The correct explanation of γείσα Κορίνθια as a sheathing of

¹ Dittenberger, *Syll.*², 537, line 58, κεραμώσει Κορινθίωι κεράμωι ἀρμόττοντι πρὸς ἄλληλων. *Ibid.* 587, line 71, κεραμίδες Κορίνθιαι παρὰ Δημητρίου ἐν Λακιάδων οἰκοντος Η, τιμή Η. κομιδὴ τούτων Ἐλευσινάδε ΔΔΔΔ (evidently from an Athenian factory). Line 72, κεραμίδες κορίνθιαι ἐκ Κορίνθου, ἡ κεραμίς ΙΙΙΙΙ, κεφάλαιον ΗΠΔΓΓΙΙΙΙ. κομιδὴ τούτων Ἐλευσινάδε ΓΓΙΙΙΙ. Called also Κορινθοειδής at Delphi, *B.C.H.* XXVI, 1902, p. 42, line 35, Θευγένης Κνίδιος ἐδέξατο κέραμον παρίσχειν Κορινθοειδ[ῆ] προστεγαστήρα τῷ ναῶ. Corinthian tiles are mentioned also by Pollux, X, 182, κέραμον Ἀττικὸν καὶ Κορίνθιον, X, 151, καλυπτῆρες Κορινθουργεῖς.

² A different explanation of κέραμος Κορίνθιος has recently been advanced by Lattermann, *B.C.H.* XXXII, 1908, p. 298. Observing that ordinary tiles are bought in pairs (ζεύγη), consisting of an *imbrex* and a *tegula*, while the Corinthian tiles are usually bought singly, he argues that the latter were composed of an *imbrex* and a *tegula* made in one piece. But this is only a minor variation within one of two different types. Comparatively few examples of such double tiles have come down to us, and are not to be regarded as normal. The two specimens reproduced by Durm, *Baukunst der Griechen*,³ Fig. 173, p. 199, belong at the edge of a roof; the front of the *imbrex* bears a painted pattern, and the *tegula* ends in an antefix in the form of an anthemium. They are special forms like the παραιτίδες ἡγεμόνες λεοντοκέφαλοι and the ἡγεμόνες ἔχουσαι τὸν καλυπτῆρα (*I.G.* II, 807, lines 110 ff.) quoted by Lattermann. Such a refinement is more suited to the technique of marble, but here again examples of its use are very rare (Durm,³ Fig. 177, Tholos at Delphi, Fig. 178, temple at Bassae). Lattermann maintains that the κέραμος Κορινθοειδής in the inscription from Delphi, which is paid for by the pair, is not really Corinthian. But if not, in what does the resemblance consist?

terra-cotta nailed against the ends of the roof timbers is due to Choisy. In the drawing on PLATE VI, I have assumed in addition to the vertical slab a horizontal one nailed upon the ἀκρογείσιον. This feature, which is necessary as a support for the first row of Laconian tiles, is taken from the roof of the Heraeum at Olympia.

The last sentence of the passage (ll. 73, 74) is obscure. Choisy supposes it to refer to a frieze of clay 1 foot high placed along the top of the screen-wall (see Fig. 2).

The wooden shutters, *θυρίδες κατάρακτοι*, have been restored in PLATE VI after Choisy, though the evidence of the inscription is not altogether clear.¹

Finally, the floor of the gallery is to be paved with clay mixed with potsherds placed over a layer of rushes,² and the exposed vertical surfaces of the walls are to be plastered with a similar substance.

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¹ Lines 75 ff. [ποιήσ]ει δὲ καὶ θυρίδας τοῦ ἄστεως τῷ κύκλῳ κα[τ]αρά[κτ]ους κατ' ἑπαλξιν --- [ἐ]παλξι[ψ σ]τροφέα προσβάλλων καὶ συνγον[φώ]σας [ὑπ]οτρυνήσει π --- ἰδε[.... π]άχος ἑκαστον διδ[ά]κτύλους, καὶ ἀντι[ξυγ]ώσει δυνεῖν ἀντιξυγοῖν -- κα]ὶ καθη[λώ]σ[ε]ι ἡλοῖς σιδηροῖ[s] πλατέσ[ε]ν πέντε εἰς τὸ ἀντίξυγον. For the meaning of *καταράκτης*, cf. Müller, *l.c.* p. 67. The shutters seem to have been composed of horizontal planks strengthened by two vertical cross-pieces (*ἀντιξυγα*), each nailed on with five nails. Frickenhaus, *l.c.* p. 36, states that the city wall did not have a screen-wall with windows, but simply crenelated battlements, and that the shutters therefore were hinged at the bottom. But the word *ἑπαλξίς*, the occurrence of which in lines 76, 80, 81, 86 he regards as evidence for this view, is used also in connection with the wall with windows, line 56. The passageway had an *ὀροφή* (l. 89), as he admits; and there is no reason to suppose that it differed from the structure described above.

² Line 82 ῥ[α]χώσας καὶ δ[σ]τρακώ[σας]. On the meaning of these words, see Müller, *l.c.* p. 68.

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THE SO-CALLED BALUSTRADES OF TRAJAN

THE so-called balustrades of Trajan afford an interesting instance of the numerous problems in art, history, and topography which the discovery of a monument sometimes seems to arouse rather than to solve. The historian is primarily interested in the events which these reliefs portray; the student of art is interested in the execution, the technique, while the topographer finds abundant material for discussion in the identification of the backgrounds, which represent various buildings in the Forum. In the almost forty years¹ since these reliefs came to light, the historian and the student of art have largely solved their problems.² The deeds are the deeds of Trajan and the art is the art of his age. It seems also as though the topographer had found peace, and for almost ten years there has been a practical unanimity in the explanation of the backgrounds. Meantime, however, our knowledge of the topography of the Forum has been steadily advancing, until it has become unfortunately necessary to disturb this peace and to resuscitate an abandoned theory, for the simple reason that recent developments are quite irreconcilable with the orthodox view.

For convenience, I give the name Balustrade A to that one of the two reliefs, the incomplete one, which at present faces the temple of Divus Julius and represents the cancellation of arrears of taxes (Fig. 1); similarly, Balustrade B will be that

¹ They were unearthed in September, 1872. The first scientific account of them was given by Brizio in the *Annali dell' Istituto*, 1872, pp. 317 ff.

² For a good discussion of the reliefs in relation to Roman art, cf. Mrs. Strong's *Roman Sculpture*, p. 151. A satisfactory account of the historical interest in the scenes is given by Jordan, *Topographie*, 1, 2, pp. 219 ff. For a good general résumé, cf. A. S. Jenkins, *A.J.A.*, 1901, pp. 58-82.

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one which faces the Capitoline and portrays the *Institutio Alimentaria* (Fig. 2).

The orthodox view of the backgrounds is practically that which was proposed by Brizio in the first publication, adopted by Jordan and Richter, and which has since become classic in Huelsen's *Roman Forum*. According to this view, the two balustrades stood one on each end of the Rostra, Balustrade A on the side nearest the Basilica Julia, and Balustrade B on the side nearest the Basilica Aemilia. The *suovetaurilia* were on the outside, and the historical reliefs faced inwards. The backgrounds in these reliefs represented what would have been actually visible to one who stood on the Rostra in front of them in case he had been able to look over the top and out beyond them.¹

FIGURE 1.—BALUSTRADE A: CANCELLATION OF ARREARS.



¹ To have looked over the top of them would have been, in actual practice, very difficult. Excluding the pedestal, the slabs are 1.70 m. in height.

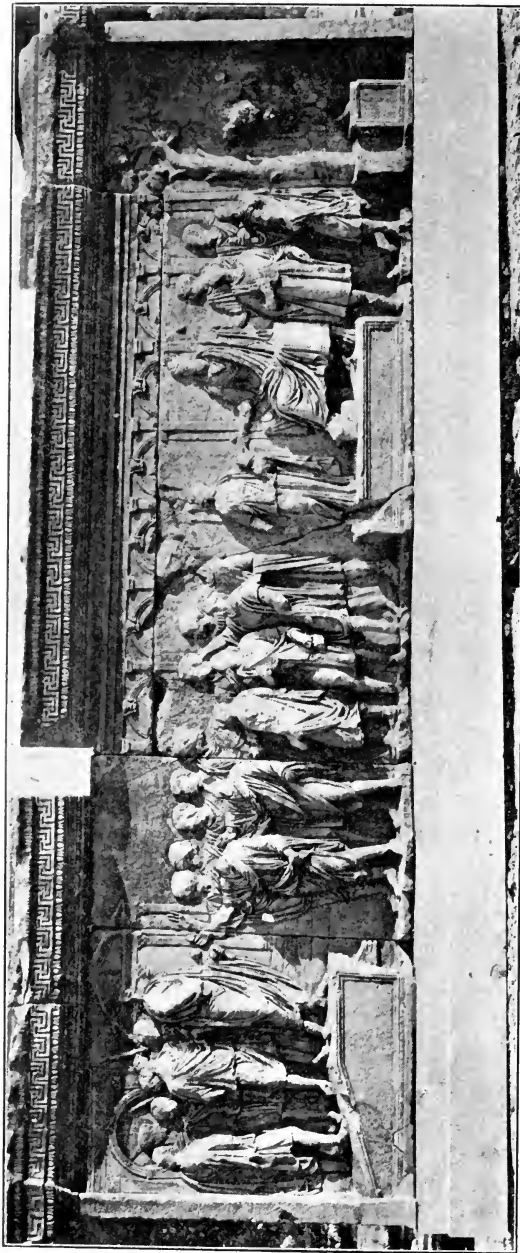


FIGURE 2. — BALUSTRADE B: INSTITUTIO ALIMENTARIA.

Thus on Balustrade A, reading from left to right, the spectator saw Marsyas and the fig tree, then the arcades of the Basilica Julia, then the temple of Saturn, then an arch either unknown or indicating the Tabularium, then the temple of Vespasian, and, finally, on the section which has been lost, the temple of Concord. Similarly, on Balustrade B, again reading from left to right, there comes first an (unidentified) arch, then the Curia, then a blank indicating the Argiletum, then the Basilica Aemilia, and, finally, Marsyas and the fig tree.

Let us now examine certain of these identifications in the

light of recent discoveries. On Balustrade B the second building from the left end shows a façade of five columns and the entablature. According to the current theory, it is identified as the Curia. If the Curia had not been preserved to us, this identification might have passed unchallenged. But, thanks to S. Adriano, the Curia is there, and the original façade is there, including some of the entablature. This façade permits of no columns in front of it, nor is there any room for such columns on the podium which still exists in front of the temple. It may well be that Diocletian restored the Curia, but it is difficult to see how any previous building could have had columns in front of it. In support of the column-theory, a coin of Augustus¹ has been brought forward. On the reverse is represented a building with a portico running around it. On the roof is a figure of Victoria, and across the frieze on the façade are the words IMP. CAESAR. The identification with the Curia rests entirely upon the presence of the Victoria on the summit of the roof. The coin itself, however, bears on its face the absolute proof that whatever building it may be it cannot be the Curia. This proof consists in the inscription IMP. CAESAR across the frieze. It is unthinkable that Augustus, whose policy lay in seeming to respect Republican institutions, should have stamped his name as Imperator on the façade of that particular building which represented the essence of popular government.²

We may well allow certain liberties to the artist who made the reliefs. In general, such representations are often inaccurate. The number of columns in a temple façade is often wrong, the architectural order of the columns is often incorrectly given, but the general effect is a real representation of the object intended. Such an effect could not be produced by the arbitrary addition of a columned façade to a building

¹ Cohen, *Auguste*, No. 122. The coin was minted between 35 and 28 B.C.

² One is tempted to speculate as to what temple this is. Close examination shows that the columns represent not the façade of a temple (which may also be indicated), but rather a portico surrounding it. Is it by chance the temple of Apollo on the Palatine, dedicated B.C. 29? Before the quadriga was placed on the fastigium? The high podium would agree admirably with Pinza's recent identification of the so-called temple of Jupiter Victor on the Palatine as the temple of Apollo.

which had no columns, and was among the sights most familiar to the eyes of Romans.

Accordingly, the second building from the left end cannot by any chance be the Curia. Let us see whether the building which follows after the vacant space (supposed to represent the Argiletum) can be the Basilica Aemilia.

The most noticeable feature of the two reliefs is the presence on both of them of Marsyas and the fig tree. These have been explained generally in one of two ways: either as symbolic, or as having local significance. The symbolic interpretation has always suffered from two things, the difficulty of establishing what Marsyas and the fig tree can possibly stand for except a locality,¹ and the difficulty of introducing one symbolic element into a series of inanimate objects, every one of which has local significance. The second view, that Marsyas and the fig tree indicate a locality, just as much as the buildings do, has had hitherto this advantage for the interpreters, that the exact site of these objects was not known, and therefore they could be placed in various parts of the Forum according as they best fitted the interpretation. No one has claimed the existence in the Roman Forum of more than one Marsyas, and if there be but one, if it is to appear at the end of both the Basilica Julia and the Basilica Aemilia, it must be thought of as in front of the temple of Divus Julius, and the spectator must be at the other end of the Forum, which fits, of course, the theory that the spectator stood on the Rostra. But we know that the Marsyas was near the Lacus Curtius, and in the last ten years the site of the Lacus Curtius has been ascertained. Instead of being near the temple of Divus Julius, it is situated at the other end of the Forum, not far from the Rostra. In other words, if we draw a line across the Forum, parallel to the Rostra and the temple of Divus Julius, and passing through the Marsyas statue, this line will pretty nearly bisect the façade of the Basilica Julia, but it will either avoid the Basilica Aemilia entirely or graze its western rather than its eastern end; that is to

¹ That Marsyas was used in the provincial towns somewhat like Roland in North Germany as the symbol of civic liberty is true, but it is of no value in interpreting the statue in the Roman Forum. It is the presence of this statue in the Forum which gave rise to the association. The Marsyas in Rome thus explains the association, but the association does not explain it.

say, it will be at exactly the opposite end of the Basilica Aemilia from that on which we find it on Balustrade B. Accordingly, the row of arches on this balustrade cannot represent the Basilica Aemilia. But if neither the Curia nor the Basilica Aemilia is represented, it is not possible that the background represents that side of the Forum.

It is at this point that we recall a theory very early suggested, but since forgotten, overwhelmed by the claims of symmetry which the orthodox explanation offers. It is the theory that Balustrade B is the continuation of the Basilica Julia and represents the same side of the Forum. This suggestion was made first by Nichols,¹ and carried out most cleverly by Marrucchi,² and also by Middleton.³ Let us examine it in the light of recent knowledge.

Huelsen has very cleverly called attention to the fact that, on Balustrade A, that building which every one agrees is the Basilica Julia has six arcades, and that there are in the real Basilica Julia exactly six arcades before we come opposite to the point where the Marsyas statue stood. The logical outcome, however, of this brilliant observation is that the artist who designed the backgrounds on the balustrades was keenly aware of the position of the Marsyas statue, and that he intended it to have an absolutely definite local significance. It follows, also, that his reliefs were intended to be seen from a point from which the Marsyas statue and the fig tree were seen with the Basilica Julia in the background. If this is the case, then the repetition of the Marsyas on Balustrade B must be seen from the same position, and as the fig tree and Marsyas follow in the same order, it is not possible to think of them as seen from opposite points, with the Basilica Aemilia as one of the backgrounds, even if it were possible to get the Basilica Aemilia into the background. Balustrade B is accordingly the continuation of the same plane.

Once granted that the arcades on Balustrade B represent a continuation of the Basilica Julia, the rest of the explanation is most simple. The vacant space is indeed a street, but not the

¹ *Roman Forum*, 1877, pp. 66 ff.

² *Description du Forum Romain*, 1885, pp. 159 ff.

³ *Remains of Ancient Rome*, 1892, pp. 345 ff.

Argiletum; instead the Vicus Tuscus. The temple which follows is that of Castor and Pollux (we can see the steps leading down from the high podium), and finally the arch is the arch of Augustus,¹ and the Rostra that of the Divus Julius.

The duplication of Marsyas and the fig tree is not intended as emphasis, but merely as an indication of the point at which the representation of the Basilica Julia is broken, to be resumed again on the following slab. It is similar to the old-fashioned habit of putting at the bottom of the page the same word which came first on the page following. The reason why the break was necessary was in the structure for which these balustrades were designed. An opening, a door, occurred at this point.

But this leads us to the discussion of a matter which is closely connected with the interpretation of the backgrounds, the question of the original purpose and position of these so-called balustrades. Ever since Richter² suggested (in 1884) that they served as ornamental balustrades for the Rostra, this view has grown steadily in popularity until to-day it has almost the strength of a dogma. Yet there exists absolutely no proof that they were ever on the Rostra, and it is merely the charm of the idea, and the deservedly great influence of those who have suggested and adopted it, which have given it strength.

On the contrary, the presence of the Rostra itself on the relief might be adduced as a proof that the spectator must be at a point where he, too, could see the Rostra. Further, we must not forget the other side of these marble slabs, the wonderful *suovetaurilia*. It is very difficult to see what they are doing on the Rostra. Those who assume an idea of general purification forget that the *suovetaurilia* is not an ordinary sacrifice, but is always connected with Mars.³ It is specifically his sacrifice, and whenever it is offered its purpose is to invoke his protection. Whenever it is used in connection with purification, it is an *ἀποτροπᾶιον* that Mars may not destroy those things included in its magic circle.

¹ Observe that the arch is standing out of the relief, like the arch on the relief in the arch of Titus. This irregularity is an attempt to represent a right angle.

² *Reconstruction und Geschichte der roemischen Rednerbuehne*, Berlin, 1884, pp. 60 ff.

³ On the connection between Mars and the *suovetaurilia*, cf. Wissowa, *Religion und Kultus*, p. 349, esp. Anm. 6.

It is not impossible that these marble slabs formed part of a monument in honor of Trajan, erected by Hadrian, and standing somewhere near where the Tribunal Praetorium had formerly stood. But such a monument, connected with Mars or with the purification after the census, is difficult to find in the centre of the Forum, unless we can suppose that in connection with the Tribunal Praetorium itself the old association of the Praetor with Mars was still sufficiently strong to put the tribunal under the direct protection of Mars; this is of course taking it for granted that the Tribunal Praetorium continued under the Empire. If any of these suggestions be correct, the two slabs would have formed the front of the parapet with the opening between them (compare the arrangement of the Ara Pacis of Augustus), and the animals on each side of the opening would have been represented as walking toward the opening.

Finally, we may hazard the suggestion that the scene on Balustrade B, familiarly known as "The Emperor and Italia," and supposed by some to be a group of statuary, may have actually stood on the spot formerly occupied by the equestrian statue of Domitian. In that case the artist would have shown skill in the arrangement of his two scenes: Balustrade A with the procession of men preparing to burn the tokens of indebtedness at the foot of the state treasury, the temple of Saturn; Balustrade B taking place in that part of the Forum where subsequently the monumental group of "The Emperor and Italia" was erected..

But these are, of course, merely suggestions to be tested in the course of time. It seems tolerably sure, however, that wherever these slabs stood in the Forum, whether on the Rostra or elsewhere, they represented each of them a half of the Basilica Julia with the adjacent buildings.

JESSE BENEDICT CARTER.

AMERICAN SCHOOL OF CLASSICAL STUDIES,
ROME, April 30, 1910.

INSCRIPTIONS FROM PRIVERNUM

THE inscriptions here published were lately discovered at Piperno in the course of visits I made there when studying the remains of ancient Privernum. Most of them certainly came from Piperno Vecchio, the Roman Privernum, in the plain below the present Piperno.

1. On a cinerary urn of white marble (Fig. 1)¹ in a wall of the rear balcony of the Casa Colandrea, Via S. Vito e Stello,

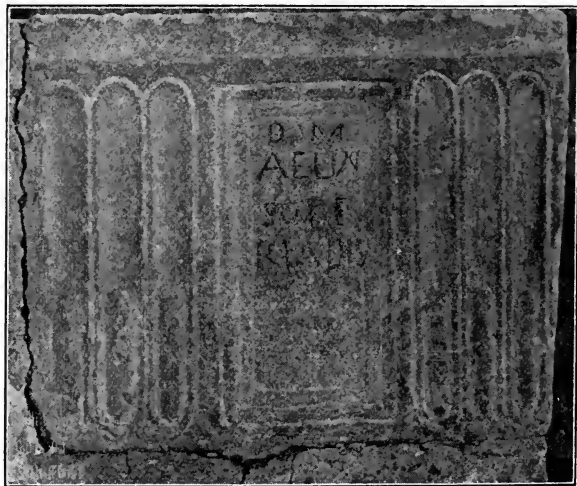


FIGURE 1. — INSCRIPTION FROM PRIVERNUM.

22, where Vincenzo Oliva copied it on March 25, 1885. This is near the old church of S. Vito, and the urn may have served as a holy water basin there, as did a similar urn bearing *C.I.L.* X, 6448, in the neighboring church of the Madonna della Stella.

¹ The photograph of this inscription is kindly furnished by Mr. J. H. Ten Eyck Burr.

Height of urn, 0.27 m.; width at top, 0.34 m.; at bottom, 0.325 m.; depth, about 0.29 m.; the panel with the inscription measures 0.11×0.21 m. On the right side of the urn are cut two crossed shields with elaborate decorations; similar ornaments are often found on sarcophagi. Letters of the inscription poorly cut; height in line 1, 0.015 m.; lines 2-4, 0.017-0.019 m.

D · M
A E L I N i.e., *Aelian(i)*
S O T E
R I A D I S

I can find no other examples of a name *Soterias*; *Soteris* is common, and in *Eph. Epigr.* VIII (1899), p. 136, No. 530, we have *Soteriae* used as the genitive of the cognomen of a certain Marcus Aemilius.

2. Upper part of the front of a cinerary urn of white marble, found in the Madonna di Mezzo Agosto at Piperno Vecchio, now in possession of Sig. Pietro Tacconi. Dimensions, $0.12 \times 0.07 \times 0.035$ m.; height of surface with inscription, 0.05 m. Good letters of the first century, 0.015 m. high in line 1, 0.011 m. in lines 2-3.

D · M
C L O D I A E · M · E T · C · I i.e., *l(ibertae)*
+ H E L P I D +

3. Lower part of white marble slab with mouldings, found at Piperno Vecchio, now in possession of Ispettore Giuseppe Jannicola. Dimensions, $0.135 \times 0.095 \times 0.03$ m.; height of surface with inscription, 0.03 m. Letters, 0.008 m. high.

G E L L I V S

4. Left portion of a *tabella ansata*, complete at bottom, of white marble, in the garden of Don Giulio Bianconi, where it was placed before August 12, 1896, by Vincenzo Oliva. Dimensions, $0.16 \times 0.095 \times 0.02$ m. Letters of the second century, 0.015 m. high.

H E D I A E ·
C O N I V G I
E T · S V I S · O

5. Base of white marble, broken at right and bottom ; same place as last, also brought there by Oliva. Dimensions, $0.32 \times 0.43 \times 0.23$ m.; width of surface for inscription, 0.23 m. On the right side of the base is sculptured a patera, now partly broken, on the left side an *urceus*. Letters of the first century, badly worn; height in line 1, 0.025 m.; in the other lines, 0.02 m.

D . . M
L · I V N I O · / / / L A S O
I V N I A · P A V L A
P A T R I
B E N E M E R E *nti*
F E C I *t*
/ / / /

The *cognomen* in line 2 is quite uncertain; I can find no *cognomina* used with *Iunius* ending in *-asus*. The combination *Iunia Paula* apparently does not occur elsewhere, though we have *Iunia Paulina* in *C.I.L.* V, 5899, VIII, 11763.

6. Fragment of white marble slab, found at Rione S. Salvatore, near Piperno Vecchio, now in possession of Sig. Jannicola. Dimensions, $0.12 \times 0.185 \times 0.045$ m. Letters of the second century, much worn, about 0.014–0.02 m. high.

/ V / / / / /
· A / / / / D V F · , · Ouf(*entina*)?
E R O · Q V I D · F /
E T · S I N E · F I N I
C V M · S E N T I R I
· T / · L V C T I

This may be a fragment of a poetic epitaph.

7. Fragment of white marble slab, complete at bottom, in the garden of Don Giulio Bianconi, where it was placed before August 12, 1896, by Vincenzo Oliva. Dimensions, $0.12 \times 0.18 \times 0.05$ m. Letters well cut, probably of the early third century, 0.04 m. high.

J E I V I }
S · I V L I }

8. Fragment of white marble slab, found at Piperno Vecchio, now in possession of Sig. Jannicola. Dimensions, $0.10 \times 0.18 \times 0.035$ m. Letters of the third century, 0.065 m. high.

~~155~~

CM

9. Fragment of limestone from a monumental inscription, seen by me in one of the mediaeval buildings north of the high road at Piperno Vecchio, March 17, 1910. Dimensions, $0.21 \times 0.30 \times 0.18$ m. (broken at back). The complete letter is 0.195 m. high.

S —

10. On the south side of the high road, just inside the south side of the mediaeval wall of Piperno Vecchio, on November 16, 1909, I picked up a fragment of brick with a stamp of one horizontal line in raised letters, broken at each end. It reads L L A N/. Sig. Jannicola has in his possession a similar stamp found at Piperno Vecchio, complete at the right end, which reads, / L L A N '. I can find no record of this stamp in *C.I.L.*; note, however, the fragmentary stamp from Ferentino, known only from a manuscript copy by Giorgi, *C.I.L.* X, 8043¹⁰², L L A C I, and the stamp on a patera from Sardinia, also known only from a manuscript copy by Spano, *C.I.L.* X, 8056⁵¹⁹, L · L A N I I.

11. Sig. Jannicola has also in his possession a piece from the bottom of an amphora, found at Piperno Vecchio, with the inscription A P O in raised letters on the side. Similar marks are found on Arretine ware, as in *C.I.L.* XIII, 10009³⁶, XV, 4990.

12. The bottom of a piece of an Arretine vase, owned by Sig. Jannicola, has stamped on it an inscription in raised letters.

D A P N

V E C I I

I have not found this in *C. I. L.*

A study of several published inscriptions from Piperno has made it possible to correct the copies of the *Corpus* and the *Notizie degli Scavi* (1899, pp. 98–101) in many particulars, as follows:

Only a small part of *C.I.L.* X, 6439, the *Corpus* states, is now in existence; the complete inscription is known only from

a copy by Marini. I have discovered in the Galleria Lapidaria practically all the rest of the inscription, in the fragments already published as *C.I.L.* VI, 1578, 30553^{8, 30, 31}, besides an unpublished fragment in the same division as the last three, which reads ^{A I N} R I A N. The inscription as reconstructed may be represented as follows, letters still known only from Marini's copy being given in italics:

a LARADIO ROSCIO
 RVFINOSATVRNI
 NO·TIBERIANOS
 c AVGVRICVPRONICV
 TRIVMVIROSTITV
 BVS·IVDICANDISSE
 VIRO·EQVESTRVM
 TVRMARVM OSK
 PRIVERNATESPA
 TRONODIGNISSIMO
 ETPRESTANTISSIMO

a = *C.I.L.* X, 6439 = VI, 1695.

b = new fragment.

c = *C.I.L.* VI, 1578.

d = *C.I.L.* VI, 30553³⁰.

e = *C.I.L.* VI, 30553³¹.

f = *C.I.L.* VI, 30553⁸.

The correctness of Marini's copy in lines 7 and 8 is now proved. *C.I.L.* X, 6435 is still in S. Cristoforo, used as a base for a font. It is of about 200 A.D. (cf. *C.I.L.* VI, 32526 = 3884). There is a point at the end of line 4; in line 5 the final S is smaller than the other letters.

C.I.L. X, 6443, 6446, 6460 are still in the front wall of the building used as an osteria at Piperno Vecchio, much obscured by repeated coats of whitewash. *C.I.L.* X, 6443 is apparently of the second century; in 6460 the NT of line 5 form a ligature.

X, 6448 is in S. Maria della Stella (Madonna della Stella), not, as the *Corpus* says, in S. Maria della Scala. The letters are poor.

X, 6449, 6454, 6459 are still where the editor of the *Corpus* saw them. X, 6449 may date from the end of the first century.

In line 1 the T overtops the other letters; in line 2 the E does not seem a modern addition, as the *Corpus* would have it. X, 6454 is a columbarium inscription of the second century. X, 6459 may be of the first century; the words in line 3 are separated by a point.

X, 6451 and 6452 are in the places described. X, 6451 is of the first century, 6452 of the second.

X, 6455 is not now at Roccasecca and is apparently lost.

X, 6458 is now in the possession of Sig. Pietro Tacconi, but broken into two pieces. It dates from the first century.

I have also seen X, 6442, 6450, 8288, but there is nothing new to be added.

Of the 16 fragments mentioned in *Notizie degli Scavi*, 1899, pp. 98-101, I have found all but Nos. 3, 10, 11, 12. No. 1 is of a good period; points should be indicated in the copy after I D in line 3 and at the end of line 4. No. 2 is late Republican; there are traces of a third line above the two given in the *Notizie*. No. 4 is certainly from a monumental inscription, for the letters are 0.09-0.115 m. in height. The letters of No. 14 do not necessarily indicate that it is Christian. In No. 15 accents stand above the first A of line 2 and the P of line 4.

The inscription recorded in *Notizie degli Scavi*, 1904, p. 53, is also at Piperno in the garden of Sig. Jannicola. The place where it was found, Ponte del Carciofo, is on the high road about a kilometre east of Piperno Vecchio, in the Rione S. Salvatore. With it was found a fragment of a statue of a woman.

HENRY H. ARMSTRONG.

ROME, March 22, 1910.

NOTE ON THE "MOURNING ATHENA" RELIEF

I WAS much interested in Miss Florence M. Bennett's article on "The So-called Mourning Athena," published in this JOURNAL, XIII, 1909, pp. 431-446. The elusive charm of the relief in question compels interest in everything that is written about it, and Miss Bennett's theory involves some points of considerable importance. Her main thesis is that the pillar in the relief is "the aniconic representation of Athena" (*l.c.* p. 433).

The first objection to be made would seem to be that the use of the word "pillar" at all in connection with this relief is not justified. Mr. Fairbanks (*A.J.A.* VI. pp. 410-416), whose article Miss Bennett takes as her point of departure, says near the beginning of his paper, "It is the received opinion that this 'pillar' represents an inscribed stele"; and, though he does not continue to use inverted commas for the word, it is clear that he only uses it as a convenient name for the object represented. His own conclusion is that "this type of pillar on vases ordinarily denotes the *meta* or goal-post of the race-course," and that it is here "the symbol of the palaestra"; but his paper is concerned more particularly with the figure of the goddess, while Miss Bennett deals with the object at which she is looking. This object seems very unlike any ordinary form of pillar; what the spectator sees is apparently the narrow end of a squared block of stone, somewhat roughly hewn, and the goddess is seemingly looking at the broad face of it, on which, according to the older theory, there would be an inscription. The stone may be the *meta*, as Mr. Fairbanks argues, though there seem to be many objections to his view; but it has absolutely no resemblance to any of the pillars appearing in representations of Athena, given by Miss Bennett in support of her

contention. All of these, with one possible exception—the Lansdowne relief—show pillars of rounded form. Of the pillar in the Lansdowne relief, Miss Bennett says (*l.c.* p. 436, Fig. 4), "the shaft is partially concealed by the shield, so that it is difficult to make out whether the pillar is square or circular in section. It is more probably the former." I should say, "more probably the latter," but the point is unimportant here, as the Doric capital makes it absolutely certain that a pillar, whether square or round, is depicted. May we not go further and inquire whether any aniconic representation of a deity can be quoted at all resembling the stone in this Mourning Athena relief? Do not all such *stone* representations belong either to the pillar type or to the class of baetylic stones, such as the omphalos at Delphi, of which Frazer gives a list in his note on Pausanias, X, 16. 3? The fact that Apollo Ἀγνιεύς was represented by a conical block of stone placed before the door is well known,¹ and these conical stones often appear on coins,² associated both with Apollo and with other deities, *e.g.* Zeus and Artemis. In my article on "The Cults of Olbia," (*J.H.S.* XXII, p. 258, Fig. 3), I quoted a late coin of Olbia, on which Apollo appears with his left hand resting on a pillar, and I suggested (*l.c.* p. 255) that this pillar represented the early cult image of Apollo, possibly brought with them by the early colonists from Miletus. There is nothing unusual in the presence of both an iconic and an aniconic representation of a deity in the same work of art, but is that deity ever Athena? Farnell (*Cults of the Greek States*, I, p. 321) says, "We have no proof of the prevalence of wholly aniconic images of Athena, and it has been shown that the religion of Pallas contained comparatively few 'survivals' of primitive thought and primitive ritual. The earliest monuments that have come down to us express ideas that are already relatively advanced." The words of Tertullian, quoted by Miss Bennett, according to Farnell, "seem to refer to some formless ἄγαλμα in Attica, of the existence of which we know nothing."

¹ Cf. *e.g.* Harpocration, *s.v.* Ἀγνιᾶς: Ἀγνιεύς δὲ ἐστὶ κίων εἰς ὃν λήγων, ὃν ἱστᾶσι πρὸ τῶν θυρῶν· ἰδίου δὲ εἶναι φασὶν αὐτοὺς Ἀπόλλωνος.

² See note in *Cults of Olbia*, *l.c.* p. 255, and Daremberg and Saglio, *s.v.* Baetylia, etc.

To sum up, then, the objections to Miss Bennett's view :

(1) The object in the "Mourning Athena" relief is certainly neither a pillar nor a baetylic stone, but a rough-hewn block, quite unlike any of the recognized aniconic representations of deities.

(2) We have no authority for the idea that Athena was ever represented in aniconic form, either by stone or pillar.

The real meaning of the relief I must leave for experts to decide, but there must be many who will not readily give up the older view that the head is bowed in mourning. The whole pose of the figure seems to mark dejection; there is, perhaps, nothing in ancient or modern art which expresses the idea of grief with such poignant simplicity and artistic restraint.

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TWO FRESCOES FROM BOSCOREALE

LAST winter the Art Museum of Princeton University came into possession of two small wall-paintings which were acquired in Italy by Mr. Junius Morgan and were said to have come



FIGURE 1. — POMPEIAN PAINTING AT PRINCETON.

from Boscoreale. Through the courtesy of Professor Howard Crosby Butler, who presented them to the Museum, I am now able to publish them.

The smaller bit (Fig. 1) is about $4\frac{1}{2}$ inches in height, $4\frac{7}{8}$ inches broad in its widest place, and $\frac{7}{8}$ of an inch in thickness. The height of the mask painted upon it, measured along a line drawn through the axis of the nose, is $3\frac{9}{16}$ inches. The larger piece (Fig. 2), which is roughly a parallelogram in form, is about 8 inches broad and $6\frac{3}{8}$ inches high; its thickness is $1\frac{1}{2}$ inch. The standing figure at the left is $4\frac{11}{16}$ inches tall.

The first painting (Fig. 1) represents a beardless, tragic mask, with short, slightly wavy locks, crowned with a wreath of green laurel. The color of the face was originally a creamy flesh tint, but now, owing to abrasion, the red background against which the mask was painted shows through, thus giving a distinct flesh tint to the cheeks. In places the red is laid quite bare under the mask. Behind the mask, and running upward in a diagonal direction from left to right, is what appears to be the trace of a staff or of a thyrsus. Just what place in the decoration this mask occupied it is of course impossible to say, for the position of this motive in wall decorations is not constant.¹ But from the fact that the ground is red it may be surmised that it decorated the middle portion of a wall.

The second painting is much more interesting. On a black ground four female figures are shown participating in an offering at an altar. The latter, as can be seen, is a cylindrical structure, painted in greenish white to imitate marble. On it a fire burns briskly, with the smoke rolling off toward the right, and about it is hung a garland of yellow flowers. At the left a standing figure with a blue himation draping her legs and a white garment hung over her right arm holds with her left hand a circular object, possibly a phiale or even a wafer, over the altar. Behind the altar are two females wearing chitones the upper part of which is yellow and the lower (at least on the figure at the right) purplish. In the right foreground, with legs extended before the altar, reclines a figure wearing a white chiton which has slipped down from her shoulders and is held in place by a bluish cord that passes over the right shoulder. Her legs are wrapped in a red himation. She is watching the figure that is holding something over the altar. The most in-

¹ Cf. Niccolini, *Le Case ed Monumenti di Pompei*, Vol. II, Tav. XII, LI, LIV, LXVIII, LXXXX; Vol. III, Tav. XII; Vol. IV, Suppl., Tav. XXVII.

teresting thing about this reclining figure is the fact that she supports a large, spirally reeded cornucopia filled with red fruit and green leaves. This object seems to lift this personage metaphorically from the midst of the others; and this, combined with the acts of the three others, namely, the offering and



FIGURE 2. — POMPEIAN PAINTING AT PRINCETON.

the playing on the tibia and the cithera, leads one to suppose that here we have a sacrifice, or rather offering, to some divinity, and that the divinity is the one represented with the horn of plenty. Who this goddess may be is difficult to say, for the attribute belongs to a number.¹ Instinctively one thinks of Fortuna as the one represented; but this goddess, although sometimes appearing as seated, is most often represented as standing.² The reclining posture, which we have here, is not usual. That it is Ceres, Juno, or Cybele seems hardly likely from the character of the figure; and Annona had hardly assumed an independent position apart from Ceres at this time.

¹ Cf. Pottier in Daremberg and Saglio, *Dict.* II, p. 1517.

² Roscher, *Lex.* Vol. I, pp. 1503 and 1504, *s.v.* Fortuna.

Even later she has the prow of a ship, and the modius, as well as the cornucopia, as her attributes.¹ That it may represent Bona Dea is possible; but even here proof cannot be adduced. The participants, at all events, in the rite which is being performed, are all women, and the worship of this goddess was distinctly a woman's cult.

Not the least interesting is the question of technique which arises in connection with these paintings. The smaller one, as already noted, shows a mask painted on a red ground, and the larger a group of figures thrown against a black background. In both instances there can be no question that the paintings were done over the ground, for in each the latter is visible where the portion of the top-painting has been worn off and allows it to show through. This background is executed in fresco; as to the mask, the figures, etc., painted over the backgrounds, however, there seems to be doubt as to the method in which they were executed. In the larger painting the figures are applied with a noticeably thick *pasto* — so thick, in fact, that it is easily felt by the fingers. In some places, as on the left arm of the figure at the left, the paint is applied so thickly that it rises in distinct ridges. As a rule when such overpainting occurs in fresco painting, it is held that this upper coating of paint is applied *in tempera*; that is, with colors mixed with egg as a medium. On the other hand, Donner von Richter² is responsible for the statement that layers of paint in fresco can be superposed. It must be said, however, that the character of some of the color leads to the belief that some stickier medium, such as egg, was employed rather than water, as in *buon fresco*. Encaustic³ is out of the question, for, according to Donner, this is never employed in wall-painting by the ancients. But, whatever the method may be, these little frescoes are extremely interesting as illustrating the technique of Roman wall-painting.

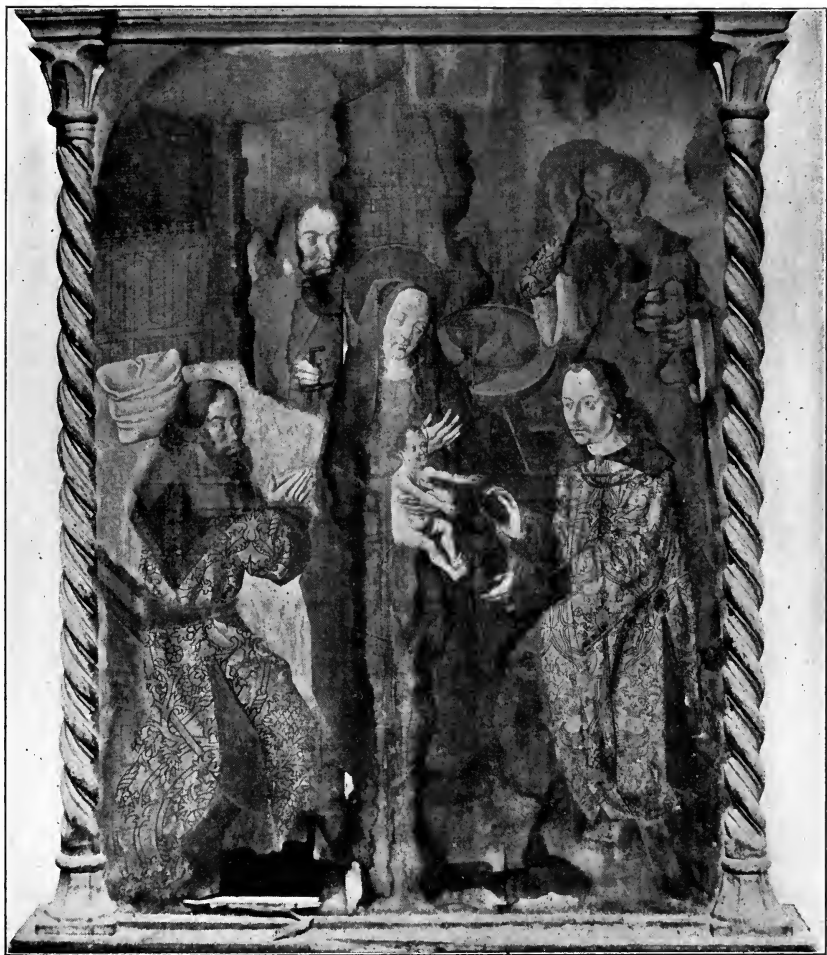
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¹ Roscher, *Lex.* I, p. 360.

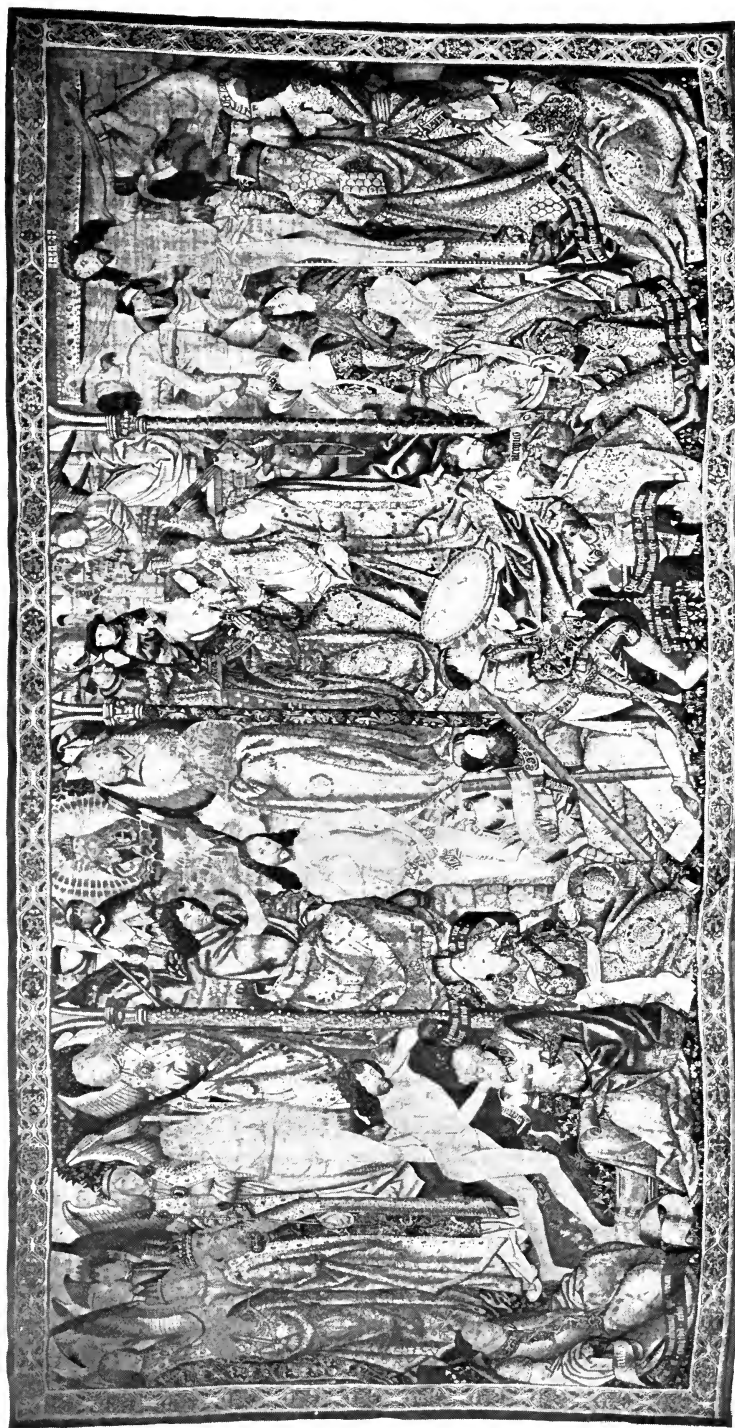
² In Helbig, *Wandgemälde der Städte Campaniens*, p. xxiv.

³ *Op. cit.* p. 1.



EPIPHANY AT TREVI BY JUSTUS VAN GHENT





TAPESTRY IN BOSTON, DESIGNED BY JUSTUS VAN GHENT

NOTES ON JUSTUS VAN GHENT

[PLATES VII-VIII]

MANY northern artists worked during the fifteenth century in Italy. This is a strange fact, considering the abundance of great and second-rate artists that was peculiar to this country ever since the dawn of the revival of the fine arts, but there are several passages in literature that force us to recognize the high esteem which was accorded by the Italians of the Renaissance period to the work of Northern artists. Vasari, to be sure, speaks, with very few exceptions, in a tone of contempt of their work; but, notwithstanding the great authority the Arretine enjoyed, his word in this case does not reproduce the general opinion of his times. Most of these northern artists led an obscure existence in Italy, for the great artists of the Netherlands or Germany, like the Van Eycks, Memling, etc., found plenty of work in their own homes, and even if they undertook a journey in foreign parts, they turned back northward as soon as they could. Only mediocre artists left their country for any considerable length of time or even forever. As these wandering artists were not great individualities, their influence on Italian art was slight or entirely unnoticeable. Justus van Ghent forms an exception. This painter, although not one of the greatest names in the annals of the art of the Netherlands, was of more than ordinary talent. When Federigo of Montefeltre, Duke of Urbino, was looking for an artist to decorate his famous library, he chose Justus (or Josse; the Italians called him Giusto; his family name was Van Wassenhoven,¹ and not Snevoet, as used to be asserted and still is asserted in Bryan's *Dictionary of Painters*), who was "peritissimo nel pitturare in

¹ According to the conjecture of M. Hulin.

olio." Master Justus painted then the 28 ideal portraits of great scholars of antiquity and early Christian times, together with those of great Italian poets, for this library, and perhaps some allegorical figures, which are, however, in my opinion, more likely by Melozzo da Forlì. He also painted a "Communion of the Apostles," this last being the only picture by his hand which still remains in Urbino, the others having been carried away after the bankruptcy of the della Rovere family, the heirs of the Montefeltre. Notwithstanding the high praise bestowed upon our master by Vasari, Justus' personality is at present very problematic. The intention of the following notes is to call attention to some hitherto unrecognized works by Justus and thus to throw some new light on this obscure figure in the history of art.

The material at one's disposal for the study of the art of Justus van Ghent has consisted until now of the above-mentioned 28 ideal portraits (14 in the Louvre, 14 in the Barberini Gallery, Rome), the portrait of Federigo Montefeltre with young Guidobaldo (Barberini Gallery), and the "Communion of the Apostles" in the Urbino Gallery. The allegorical figures of the Arts (now in Berlin, Windsor, and London) I consider, with Schmarzow (*Melozzo da Forlì*, 1886), Bode (Burekhardt's *Cicerone*, 9th ed.), and others, against Voll (*Geschichte der altniederländischen Malerei*, 1906, and *Repertorium für Kunstwissenschaft*, 1897), as the work of Melozzo da Forlì.¹ No literary document relating to Justus has come to us, except a few insignificant bills in Urbino (relating to the "Communion" picture and a lost gonfalone which Justus was to paint for a confraternity; the first picture was also painted for such a religious community), and a fragment in the Ghent archives. Although Giovanni Santi, the father of Raphael, must have known Justus, he does not mention him in his otherwise circumstantial chronicle of the life and deeds of Federigo. We do not know where or when he was born, where or when he died, whose pupil he was, or where else he had worked. The only established date from his life is, that in the year 1474 he finished the "Communion

¹ Repeated careful study of the Berlin panels convinced me, however, that they were executed with the help of Justus. The technique is his, although the design is Melozzo's.

of the Apostles" in Urbino. That he was court painter to Federigo we know from Vasari and from the fact that the duke had his portrait painted by him twice, once on the "Communion," and once for the library of the ducal palace in Urbino, this latter being now preserved in the Barberini Gallery in Rome. This is not much, but we can infer from it that Justus must have been of extraordinary artistic attainments,¹ for Federigo was not only a munificent patron of art, but also a man who understood how to choose his artists with remarkably good taste. We find among the list of artists employed by the court of Urbino in his day some of the most illustrious names of the early Italian Renaissance, Piero degli Franceschi, Melozzo da Forlì, Francesco and Luciano Laurana, and others. Justus was in Urbino at the same time when Piero and Melozzo were working there, and through them, I venture to say, he exercised an influence on Central Italian art that makes itself felt down to the early works of Raphael. Some of Piero's paintings show distinct reminiscences of Justus' types, as for instance the shepherds and St. Joseph in the London "Nativity," certain figures in the Urbino "Flagellation," and so on. It seems to have been proved that the hands of Federigo da Montefeltre in Piero's Altarpiece in the Brera gallery in Milan were painted by Justus. Several of Melozzo's pictures are still considered by highly respectable students as Justus' works, and his prophets in the dome of the Santa Casa in Loreto are evidently inspired by Justus' ideal portraits for the Urbino library.²

The indirect, but quite clearly recognizable, influence Justus exercised through these two great masters on the development of Central Italian painting might be further demonstrated by examination of the work of their pupils, Signorelli and Giovanni Santi, and the early pictures of Raphael. But this would take us too far. My intention is simply to point out the

¹ This is also confirmed by an examination of the "Communion." It is, in spite of some awkwardness in the figures, a highly original composition, excellent in the characterization of the apostles and the solemnity of expression, and majestic in its acidity. It has been blamed for disproportion in figures and space. This is a fault common to all early Flemish masters, not excepting Jan van Eyck.

² Mention should be made of the drawings of Raphael, in the Venice sketch book, after the ideal portraits of the Urbino library.

importance — singularly overlooked up to the present day — of Justus van Ghent in the history of art.

I have been so fortunate as to detect a painting (PLATE VII) in the municipal collection at Trevi, near Foligno, which bears the strongest resemblance to the work of Justus. This is a tempera picture on canvas in a very sad state of preservation, injured by fire and water. The frame, which seems to be the original one, has a semicircular crest, containing in the centre a roundel with Christ of the Resurrection and two flying angels on its sides, painted in the manner of the Foligno school of painting of the Quattrocento, and especially reminding one of Pierantonio Mezzastris. The attribution of this picture to Justus van Ghent seems to be justified on account of the great affinity of coloring, types, and drawing to the Urbino picture. It appears to be earlier in date, however, and it must have been painted soon after the artist's coming to Italy (he was called to Italy probably in the course of the year 1468). It is cool in colors and very precise in the drawing of the faces and hands. The features of the Madonna resemble the type of Hugo van der Goes. The stumpy hands with the flat finger-tips are the same as in Urbino. Not much can be said of the drapery, for it has been altogether robbed of its original aspect through the washing off of its modelling. The canvas is about 1.30 m. high, and 0.75 m. wide.¹ The Urbino panel was painted during the years 1469-1474, and it still shows the genuine Flemish characteristics of its author, unchanged by Italian atmosphere.²

¹ It should be remarked that the face of the magus kneeling to the right and the head of the Christ-child have been carelessly repainted. The round table with the chalice is also due to restoration.

² In the woman with a child on her right arm (near the group of men surrounding the duke), we evidently have to do with a portrait of Battista Sforza, the consort of Federigo da Montefeltre, a presumption which can be justified by a careful comparison of this picture with the portrait of the duchess painted by Piero degli Franceschi, and at the present time preserved in the Uffizi in Florence. The features are the same; notice the peculiar shape of the nose. The child is the son of Federigo, the future duke Guidobaldo, who was born in the year 1472. A comparison of the work of the two artists, Piero and Justus, shows also how the Flemish painter succeeded in conveying a more natural and winsome idea of the duchess than did Piero. The portrait by the latter looks almost stiff and lifeless in its coldness and severity, compared to that by the former. At the same time we must admit that Piero's work is broader and more monumental, and his composition more skilful and impressive. Justus' portrait is almost lost among the bystanders in the picture.

The Trevi picture is also absolutely pure in its Flemish appearance. There are several reasons which will induce one to fix its date before that of the "Communion of the Apostles." The latter shows greater skill in composition and is superior in the firmness of drawing. In the former, nothing has been preserved of the background from which the figures jut forth, and the star in a square on the top of the picture is a coarse addition of later times. This canvas shows, even more clearly than the picture in Urbino, the artistic parentage of Justus van Ghent, the studio of Hugo van der Goes. The type of the Madonna, as stated before, and that of Joseph are the creations of Hugo. This can easily be seen by comparison with works of this artist; for example, the Portinari Triptych in the Uffizi or the "Death of the Virgin" in the Academy at Bruges.

As another hitherto unrecognized work of Justus van Ghent I regard the large tapestry (PLATE VIII) recently given by Mrs. J. H. Wright to the Boston Museum of Fine Arts. This tapestry was reproduced in the *Bulletin* of the Museum for February, 1909. Although this reproduction is far from being satisfactory, it enables the attentive examiner to detect such peculiarities as to make it quite certain that the design for the tapestry was furnished by the same master who painted the "Communion of the Apostles." (The tapestry represents in four compartments, divided by eight columns with Gothic capitals, the Creation of Eve, the Baptism of Christ, the Nativity, and the Crucifixion; below these are figures of prophets and apostles.) The Christ's head is exactly the same as in Urbino. The treatment of the hair, falling in rich locks on the shoulders, is the same in this head as in that of the Christ in the Urbino picture and in the picture at Trevi (cf. especially the Magus kneeling to the left of the Virgin). There are no reasons for placing this design after the Italian journey of our master. One is rather inclined to place it before, considering the awkwardly crowded composition and the clumsy arrangement of the draperies. There is something youthfully fresh about the whole, in spite of the apparent faults.

It is a remarkable fact that this rare master preserved his national characteristics to such an extent as we have seen, amid an artistic environment that was one of the most brilliant the Ital-

ian Renaissance produced. Instead of taking from the famous artists that worked in Urbino, Justus gave to them, though nothing very great, so that we are still in a position to distinguish his traces. Some writers on art have endeavored to prove that the art of Justus van Ghent became, under the sunny sky of the South, a medley of Flemish training and Italian influences. As proofs of this assertion they mention the four Liberal Arts in London, Windsor, and Berlin. These pictures, however, no attentive student of the question will be able to retain as Justus' work; as has been said above, so far as invention and design are concerned, they are by Melozzo da Forlì.

MORTON H. BERNATH.

NOTE. — After a careful examination of all accessible photographs of Flemish pictures of the fifteenth century, I find that the type of Epiphany represented in the Trevi picture does not occur again in Flemish art. The same is the case with the Urbino panel. This is a very good proof for the authorship of Justus van Ghent, who must have painted the Epiphany in Italy, where he was not bound by tradition in any way. Every student of Northern art knows how the artists of the Netherlands, during the fifteenth century and the first decades of the sixteenth century, held to the traditional types in representing this scene. There is a "Rogier van der Weyden" type; there is a "Hugo van der Goes" type, "Memling" type, etc. Cf. Kehrér, *Die Anbetung der heiligen drei Könige in Literatur und Kunst*, Vol. II, 1908, Leipsic. On page 332 I mention the banner which Justus van Ghent painted for the Confraternity of Corpus Christi at Urbino as lost. After I wrote the preceding article, I found a canvas in Germany which I believe to be the banner in question. I intend to publish it with additional observations relating to Justus as soon as possible in this JOURNAL.

M. H. B.

EXPLORATIONS IN SOUTHEASTERN UTAH
IN 1908

THROUGH the generosity of Colonel E. A. Wall of Salt Lake City the Utah Society of the Archaeological Institute of America is enabled to send an expedition into the field each summer to study the archaeological remains which are scattered thickly throughout the southern part of the State, and to make collections for the Museum of the University of Utah. It was my good fortune to be appointed Field Assistant for the year 1908, and put with Professor Byron Cummings of the University of Utah in joint charge of the summer's field campaign.

We were instructed by Dr. Edgar L. Hewett, Director of American Archaeology, to choose a region in Southeastern Utah, spend a couple of weeks in its exploration, and then select a site to be excavated during the remainder of the season. Having thus the freedom of action essential to successful field work, Professor Cummings and I met on June 11 at Monticello, Utah, and decided to explore the western tributaries of Montezuma Creek, in the southeastern portion of San Juan County, hoping not only to obtain some idea of the number and distribution of the prehistoric remains of that region, but also to find a ruin suitable for excavation.

We left Monticello on June 12, accompanied by Messrs. Neil Judd and Clifford Lockhart, students in the University of Utah, and James Hambleton, a cattleman, who was of great assistance to us as a guide. Later in the month, while we were engaged in excavations about Cave Springs, we were joined by Messrs. H. G. de Fritsch and Leavitt C. Parsons, both students in Harvard University. These gentlemen remained with us to the close of the season and, with Messrs. Judd and Lockhart, were constantly at the works, where they rendered valuable

assistance. I am indebted to Messrs. de Fritsch and Parsons for the map of the ruin given in Figure 2.

Our work closed on August 1.

Montezuma Cañon (see Fig. 1), or Montezuma Creek, as it is locally called, is a deep and rather narrow valley, which heads

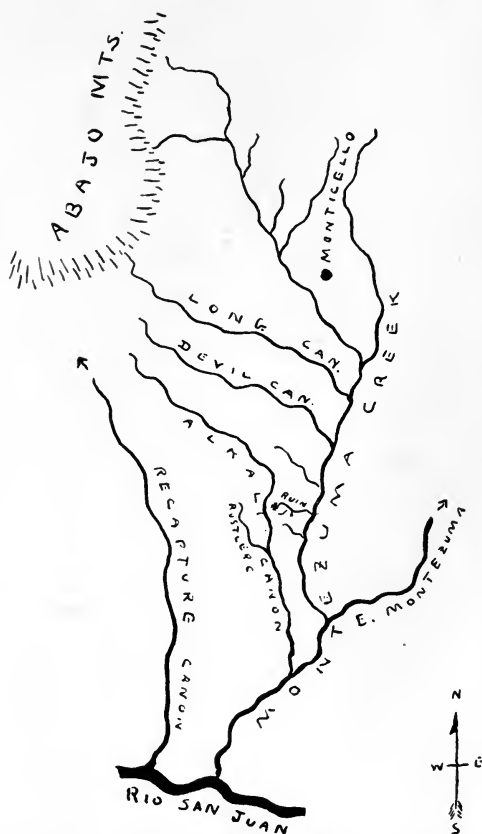


FIGURE 1.—SKETCH MAP OF WESTERN TRIBUTARIES OF MONTEZUMA CREEK. SCALE: 1 INCH TO 12 MILES.

(* Marks the ruin excavated.)

in the eastern slopes of the Sierra Abajo or Blue Mountains, and flows in a southerly direction some 45 miles before emptying into the San Juan River. Its eastern tributaries drain the long mesa which separates it from the McElmo - Yellow Jacket system, while on the west its upper tributaries all head against the eastern and southern slopes of the Abajos. The work of the expedition was confined to these upper western tributaries. According to the cattlemen of the vicinity the lower western cañons are short and contain few ruins.

Montezuma Creek itself contains running water throughout its whole course only in wet seasons. At other

times the stream sinks into the sand far above its mouth, and continues to the San Juan in the form of an underflow which reappears here and there in the form of "seep springs." Along

the course of the river there is a considerable growth of cottonwoods, but apart from these there is little vegetation in the cañon-bottom. The surrounding sandstone mesas, however, are thickly overgrown with dwarf cedar and piñon trees, replaced, as the country rises toward the Abajos, by spruce and yellow pine. The western tributaries are merely smaller replicas of the Montezuma itself, being, in most places, narrow, gorge-like cañons with barren, sandy bottoms and abrupt, cliff-like sides. None of them contain live water in their lower reaches during the summer except after heavy rains in the Abajos. By digging in the stream-beds, however, a small supply of rather alkaline water may usually be obtained. A few fine clear springs are to be found, chiefly in Alkali Cañon and its branches.

The first considerable upper western tributary of Montezuma Creek is Long Cañon. It heads against the Abajos and flows in a southeasterly direction, gradually becoming deeper and more barren, until it debouches upon a wide "bench" above Montezuma Creek. Devil's Cañon, the next valley to the south, follows practically a parallel course. Alkali Cañon, the largest western branch, again heads in the Abajos, but instead of flowing east during its whole course, soon turns nearly south, thence running parallel and close to Montezuma Cañon for some 15 or 20 miles before eventually entering it. This leaves a narrow mesa, called Alkali Ridge, between the two systems.

Because of the narrowness of this ridge, all the cañons emptying into Montezuma Cañon between the mouths of Devil and Alkali cañons are short. The majority of them are little more than draws and probably contain few ruins. The country in that region is, however, so split up and broken, and presents such a tangle of steep gullies, cliffs, and precipitous ravines, that many weeks would be necessary for its complete exploration.

We confined ourselves, therefore, to a study of Long, Devil's, and Alkali cañons; and also examined the ruins about the heads of Rustler's and Ruin cañons. The former is a small western branch of Alkali Cañon; the latter one of the largest of the short draws which drain Alkali Ridge and run into Montezuma Cañon.

The prehistoric remains of the region fall into three well-defined groups: (1) Cliff-dwellings, (2) Cañon-head dwell-

ings, and (3) Pueblos. Cliff-dwellings are built in caves or on ledges of the cliffs. Cañon-head dwellings are loose aggregations consisting of a considerable number of separate small houses, which are always formed about the abrupt ends of small cañons. Pueblos are more or less compact settlements built in the open, either on the mesa-tops or in the cañon-bottoms.

Cliff-dwellings were found scattered thickly throughout the whole region explored, from the heads of the tributary cañons to their mouths, and all along the course of Montezuma Creek itself. They were, indeed, the only buildings found in the greater part of Long and Devil's cañons and in the headwaters of Alkali Cañon. The two or three pueblos which we noticed in those regions were very small, and had every appearance of having been merely temporary affairs.

Two cañon-head groups were found in the branches of Ruin Cañon, one at the head of Rustler's Cañon, and two in small western tributaries of Alkali Cañon.

There are many large pueblos about the middle and lower reaches of Alkali Cañon and along the side branches of Ruin Cañon. There seems to have been a great centre of population along the whole middle portion of Alkali Ridge. The majority of these large ruins are situated on the mesa, the few which are to be found in the bed of Alkali Cañon itself being rather small.

CLIFF-DWELLINGS

Cliff-houses are built in every conceivable sort of situation, and therefore cannot, of course, be classified by shape or location. The simplest type is a small natural cave made into a single room by the addition of a wall closing in the front. Between this and such buildings as Cliff-Palace and Sprucetree House on the Mesa Verde, which are really great pueblos built in caves, and hardly dependent at all on the cliffs, there is an endless variety of types. None of the cliff-houses in the region here under discussion, however, are of any great size. The largest of them do not contain over eight or ten rooms, while the majority are merely single- or double-room structures, their roofs and back walls usually being supplied by the cave in which they are built.

In spite of their small size these cliff-dwellings are nevertheless interesting in that they show great ingenuity of construction and bear testimony to the adaptability and resourcefulness of their builders. Their protected situations, also, have shielded them from rain and snow, and so preserved for our study certain architectural features, such as doorways, beams, and roofing, which, in the pueblo ruins in the open, have long since disappeared.

The masonry of the cliff-dwellings of the Montezuma Cañon district is much inferior to that seen on the Mesa Verde to the east and in Grand Gulch to the west. The building-stones were here simply cracked out or picked up at random, and at best very rudely shaped. Many of the walls consist merely of small, irregular stones set in adobe with no attempt at coursing. The surfaces, both inside and out, are usually coated with adobe roughly laid on with a wooden implement or with the hand. Beyond this there is little plastering, although all cracks and crevices in the back or cliff walls of the houses are carefully plugged up with small stones or corn-cobs set in adobe. The floors of the rooms are seldom levelled or filled in to do away with irregularities, the natural rock being left without modification. Wooden beams are sometimes incorporated in the masonry, usually along the foundations of walls, for the purpose, probably, of bridging spaces which it would be difficult to span with masonry. This use of wood is very uncommon on the Mesa Verde and McElmo, but I have been told that farther to the west, in White Cañon and Grand Gulch, it is a very common style of building, and that some of the houses are almost entirely constructed of logs and adobe.

Another feature which is comparatively rare on the Mesa Verde,¹ but of which we found a fine example in a small house in Devil's Cañon, is the wattle-work wall. This wall was begun after the manner of a picket fence by placing upright and about a foot apart a number of slim cedar poles. These poles were then wattled together with twigs and osiers, making a fairly close and basket-like surface, which was then coated inside and out with adobe until the whole had a thickness of about three inches. This construction appeared to form an

¹ It occurs in a ruin in Fewkes Cañon and in Long House.

addition to the house, and to have been built at a later time than the other walls.

The cliff-dwellings of the region are, as a rule, very small and for the most part placed in caves so low that their roofs are also the roofs of the rooms. For this reason artificial roofs were seldom necessary, and as all traces of the roofs of the pueblos in the open have long since rotted away, our study of this feature of the architecture was limited to a single example offered by a cliff-dwelling in Devil's Cañon. This house, built on a ledge some 15 feet above the talus slope, consists of a series of seven or eight rooms, the westernmost of which are partly protected from the elements by a projection of the cliff overhead. The last room of the house is excellently preserved. It is 8 feet long by 4 feet wide, the back wall being formed by the cliff. At a height of 7 feet 6 inches from the floor a cedar beam 8 inches in diameter at the small end runs the length of the middle of the room parallel to the cliff. Its two ends are set into the masonry of the walls without projecting through. At right angles to this main beam and resting upon it are four smaller beams about 2 inches thick. Their outside ends are set in the masonry of the outer wall, the inner ends resting against the cliff, where they are held in place by daubs of adobe. Upon this second series, and at right angles to it, or parallel to the main beam, are laid slabs of split cedar of about the length and thickness of ordinary "shakes." They cover the entire roof, and a layer of adobe some 3 inches thick is placed directly upon them. There is no coat of cedar-bark between the adobe and the wooden part of the roofing, such as usually occurs in Mesa Verde houses. The top of the roof is carefully levelled off, the walls rising a few inches higher than its upper surface. A trapdoor leads from the room below to the open housetop. This door is 20 inches long by 15 inches wide and was coped about by flat stones, one of which is still in place. The other rooms of the building seem to have been covered in the same way, although they are in a so much more advanced state of ruin that the beams have nearly all rotted away.

For statistics as to doors also we are dependent on the cliff-dwellings, for in them alone are the entrances sufficiently well

preserved for measurement and study. We found them to differ little from those of the Mesa Verde and McElmo. They are rectangular, and an average of the many examples that we examined gives the following dimensions: height $22\frac{1}{2}$ inches, width 15 inches, thickness of wall 11 inches, height from floor of room 20 inches. They are usually fitted with a single large slab of sandstone for a sill, while the lintels are made either of a similar slab or of several small wooden rods sunk in the masonry of the jambs. A single rod about an inch below the middle of the lintel served as a rest for the stone slab which was used to close the door. The Tau-shaped door does not, so far as I know, occur in the western tributaries, although in Montezuma Creek itself we noticed one example.

What the purpose of such large numbers of cliff-dwellings could have been is more or less a puzzle. That they were of the same culture as the pueblos seems proved by the potsherds found in both. With the exception of two houses in Devil's Cañon, one in Ruin Cañon, and one or two in Alkali Cañon, none of them contain more than two or three rooms, while the great majority are nothing more than single chambers hardly large enough to hold a man, and usually built in caves so low that one cannot sit upright in them. Even the larger examples just mentioned contain only six or eight rooms, and even these groups do not contain the kiva or ceremonial room. The relation of the kiva to the religious and tribal life of the prehistoric people is as yet not clearly understood, but it nevertheless seems probable that no permanent dwelling-place could exist without it. For this reason the absence of the kiva from even the largest of the cliff-dwellings makes it seem improbable that these buildings were ever continuously inhabited. Whether they were lookout places, granaries, or shelters from which to watch the cornfields, are questions which it is better to leave open until more complete data as to their exact topographical situation and their relations one to another and to the larger pueblo groups can be collected.

CAÑON-HEAD GROUPS

The cañon-head groups differ, as has been stated above, from the pueblos chiefly in being scattered aggregations of small

houses, rather than many houses or groups of rooms brought together to form a more or less compact, or at least contiguous, whole. The component buildings, none of which are individually of any great size, form, nevertheless, collectively a considerable group. In at least three cases, *i.e.* at the head of Rustler's Cañon and in the two branches of Ruin Cañon, they are only a few hundred yards distant from large pueblos. This fact suggested to us that they might have been block-houses or watch-towers to guard the springs which at one time certainly existed directly below the buildings and which must have formed the chief water supply of the near-by pueblos. A fourth group, although a small one and not directly at the head of a cañon, guards Cave Springs, a locality which, from its abundant supply of water and its propinquity to several large ruins, must have been strategically very important.

Further evidence that tends to strengthen the theory that these structures were fortifications rather than regular dwelling-places is offered by the fact that they do not often seem to contain kivas, have no well-defined burial places, and are almost all built on the edge of the rim-rock, on the tops of large boulders, or in other easily defensible places. They are now so badly ruined, however, that little can be said of their original ground plan or architecture. Excavation would conclusively prove whether or not they are of the same culture as the other remains of the region. From the potsherds found about them there seems no reasonable ground for supposing them to be the work of a different people or a different period.

PUEBLOS

The larger pueblos are nearly all to be found on the tops of the cedar-covered mesas between the cañons. We mapped over twenty good-sized groups in a small section of Alkali Ridge alone, as well as a very large settlement above the head of Rustler's Cañon. These pueblos are so badly ruined that they are now merely low mounds thickly strewn with fallen building-stones and heavily overgrown with sagebrush and greasewood. They are usually situated on the crest of a ridge some distance back from the ruins of the cañons, thus occupying the highest

ground in the immediate vicinity with a view out over the cornfields that must once have surrounded them.

The smaller pueblos always seem to have consisted of a single or double row of rooms running roughly east and west, with one or more kivas, which appear as shallow circular depressions 15 or 20 feet across, lying just to the south of them. To the south of the kivas again is found the cemetery, a low mound thickly covered with potsherds. The larger ruins are merely multiplications of the unit just described, with a correspondingly greater number of kivas and cemeteries.

As the burial mounds are unfortunately quite obvious, they have been much pillaged by "pot-hunters," relic-seekers, and other vandals, who, digging carelessly, have broken fully as much as they have recovered, and who have also entirely destroyed the skeletal remains. We were fortunate, therefore, to find for our excavation a large ruin with two burial mounds, one of which had been only partially dug over, while the other one was practically untouched.

This pueblo, quite typical of the larger examples of its class, is built upon a cedar-covered ridge some 200 yards from the head of one of the terminal branches of Ruin Cañon. At that point there is a large cañon-head group, which must have protected the water supply for the community and was perhaps built for that purpose. The pueblo itself is a straggling structure of many wings and additions, 500 feet long and, at its widest part, about 300 feet across. The wings, it will be noticed (Fig. 2), run for the most part east and west; the kivas lie to the south of the two largest lateral wings.

We made our camp at Cave Springs, a mile and a half west of the ruin. The water of that spring is fresh, cold, and abundant, and there is ample feed for a few horses in the cañon below. We remained at this ruin for nearly five weeks, laying bare seventeen rooms and three kivas. We also completely dug over the two burial mounds and spent several days on the mounds of two small ruins to the east.

The task of excavation was slow and arduous, as we were unable to secure proper picks to pry out the quantities of tightly packed fallen stones which filled the rooms and kivas; and having only one wheelbarrow we were often forced to handle

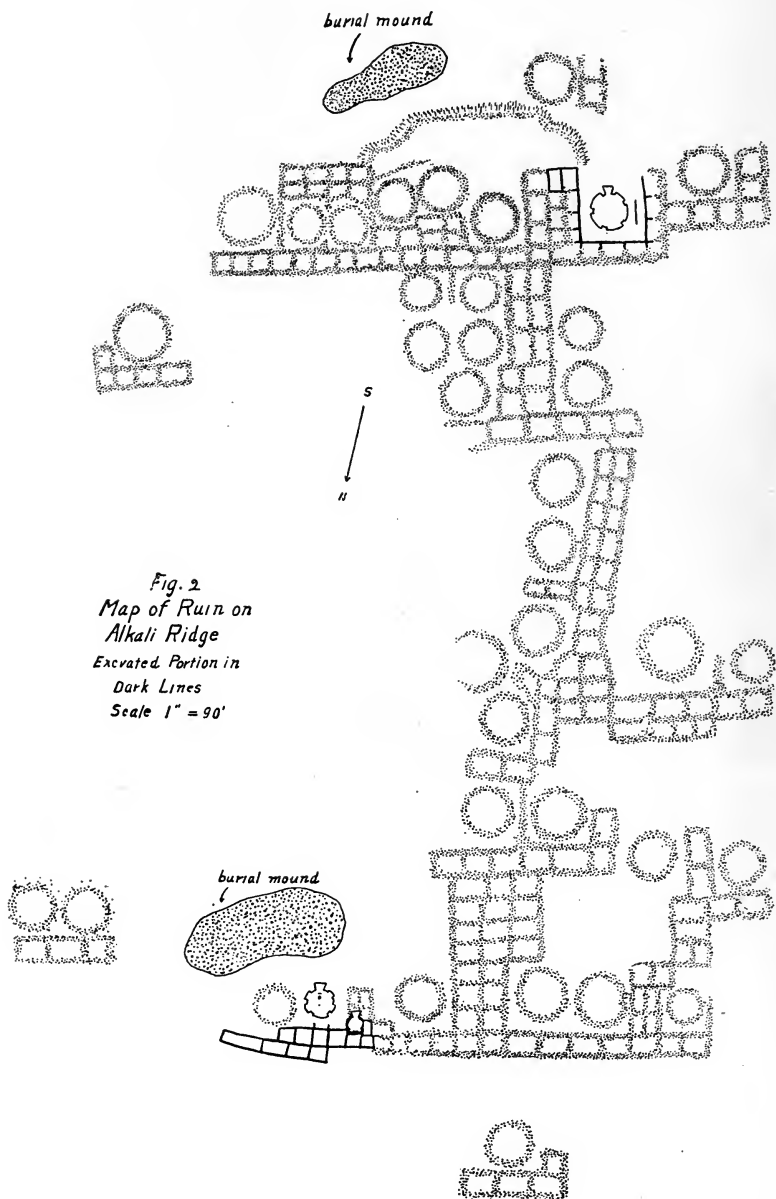


FIGURE 2.—PLAN OF RUIN ON ALKALI RIDGE.

our back dirt two or even three times. The results were, nevertheless, fairly satisfactory; we procured about four hundred museum specimens, among them thirty pieces of unbroken pottery, besides many pieces in fragments, which Professor Cummings has since successfully restored. We also recovered a considerable series of crania and other skeletal remains. A report on these last by some competent somatologist will, we hope, be presented at an early date.

Digging was begun at the east end of the northernmost wing (Fig. 3), and here we occupied ourselves for nearly two



FIGURE 3. — SOUTHEAST END OF NORTH WING.

weeks in clearing rooms and kivas. We not only emptied the rooms themselves, but ran trenches all along the outside of the house, laying bare the walls to their foundations. Even in the best preserved sections these walls did not stand, when excavated, to a height of over 4 feet, but such large quantities of fallen building-stones were present that it seems safe to assign a height of two stories to the entire building. On the other hand, its narrowness throughout argues against the former presence of more than two stories; so that we seem to have here a fairly low and much spread-out structure which must have been

quite different in appearance from the more common, terraced type of pueblo, which was compact in ground plan and rose to a considerable height. Such a village as the one under discussion could not have been easily defended.

The need for defence, apparently not so keenly felt here, was met in the Mesa Verde district, in the Cañon de Chelly, and elsewhere, by building in caves and on ledges difficult of access and easily defensible; while the pueblos of the McElmo were placed upon the edges of precipitous rim-rocks, their otherwise unprotected mesa or back wall being high and without ground-floor doorways.¹ In the Chaco Cañon, as well as in other parts of the Southwest, pueblos, where built in the open, are made safe from marauders by their compact form. In this case, however, the buildings are in no way protected by the configuration of the land, and the various component wings are so loosely strung together that no combined resistance to a sudden attack could have been made.

Living-rooms. — The excavation of the living-rooms gave very little insight into the minor features of the architecture of the pueblo. As only the lower courses of the walls were standing, we were unable to recover any evidence as to the system of roofing or the method of door construction, while the floors could only here and there be made out. They seemed to be, as usual, of hard-packed adobe. The plastering, too, had almost entirely disappeared from the walls.

The rooms were fairly uniform in size, averaging about 10 feet long by 5 feet wide. The easternmost chamber, however (Fig. 4), which had apparently been used as a granary, was longer than any other that we observed (23 feet). A violent conflagration had raged in this room, oxidizing a large quantity of corn on the cob. The heat of the fire had been great enough to vitrify, and in some places even to turn into a sort of iridescent slag, parts of the adobe of the walls and ceiling. Fragments of black-and-white pottery had been burned to a reddish yellow color, the black paint becoming a rich brick-red. The body of the ware was greatly hardened and in spots vitrified. Such conditions as this may possibly account for the rumors

¹ S. G. Morley, 'The Excavation of Cannonball Ruins,' *American Anthropologist*, Vol. X, N.S. 1908, p. 597.

which one hears in the Southwest of the finding of cliff-dwellers' remains imbedded in volcanic ash or lava, rumors that are sometimes quoted to prove the immense age of the prehistoric period.

The masonry throughout the pueblo is much inferior to that of the buildings of the McElmo and the cliff-dwellings of the Mesa Verde. Little attempt had been made to shape the stones,

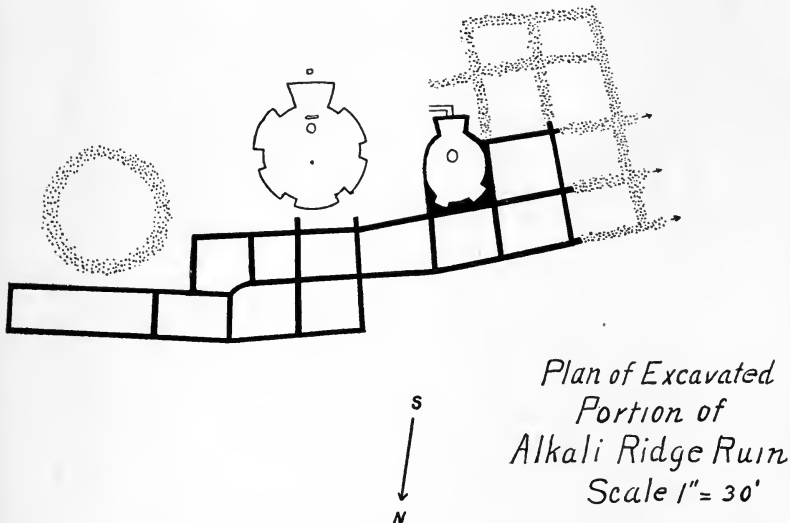


FIGURE 4.—PLAN OF EXCAVATED PORTION OF RUIN.

the rough blocks and fragments, quarried in the near-by cañon, being merely hammered or cracked out and laid up in adobe with scarcely a semblance of coursing.

In several places cedar posts were incorporated in the lower parts of the walls. They were driven several feet into the ground, their upper ends sunk in the masonry. The lower parts of these stakes had been sharpened by fire, their charred portions and the marks of their bark in the adobe of the walls being usually the only evidence of their former presence. All roof beams and other objects of wood were reduced, unless charred, to mere reddish streaks in the earth.

The finds in the living-rooms were very meagre. Because of their extreme dilapidation and from the fact that no "mano" or "metate" were unearthed in them, it seems not unlikely that

that portion of the pueblo had been deserted and all such utensils moved to some other place.

Kiva. — It will be seen by consulting the plan of the pueblo (Fig. 2) that its forty or more kivas are very evenly distributed among the rooms in a proportion that may be roughly estimated at one kiva to seven ground-floor chambers. The majority of the kivas lie to the south of, and immediately contiguous to, the groups of rooms to which they belong. In making the plan, only large and well-marked circular depressions were called kivas, and it is possible that there exist many small examples of the intramural type (Figs. 4, 6, and 7), which, before excavation, could not be distinguished from an ordinary dwelling-room. The greater number of the ceremonial rooms of this ruin, and, so far as we could determine, of all the sites in the Montezuma drainage, are structurally quite independent of the buildings to which they belong. They are not enclosed in a square or rectangular walled-up space, as was found by Mr. Morley to be the case on the McElmo,¹ nor are they set among the rooms as they are in the cliff-dwellings of the Mesa Verde.² This fact is quite in accord with the straggling and loose-knit plan of the Alkali Ridge ruin.

As is the rule in the San Juan, the kivas are subterranean. They are round, and, like those of the neighboring regions, have a plain lower wall some $3\frac{1}{2}$ feet high, surmounted by six pilasters which divide the space above the lower wall into six niches (Fig. 5). These pilasters also served to carry the entire weight of the roof.³ They are usually about $2\frac{1}{2}$ feet high, thus making the ceiling of the chamber approximately 6 feet above the floor. The outside of the roofs of these subterranean rooms apparently formed a kind of plaza, which was on about the same level as the floors of the living-rooms. There is a slight inward trend of both walls and pilasters. The kivas here average about 16 feet in diameter.

Of the six niches or recesses, which are divided from each other by the pilasters, the south one is always the deepest and

¹ *Loc. cit.*, p. 600, and pl. XXXVII.

² J. W. Fewkes, *Bulletin* 41, *Bur. Am. Ethnol.*

³ W. J. Fewkes, 'Ventilators in Ceremonial Rooms,' *American Anthropologist*, N. S. Vol. 10, 1908, p. 385.

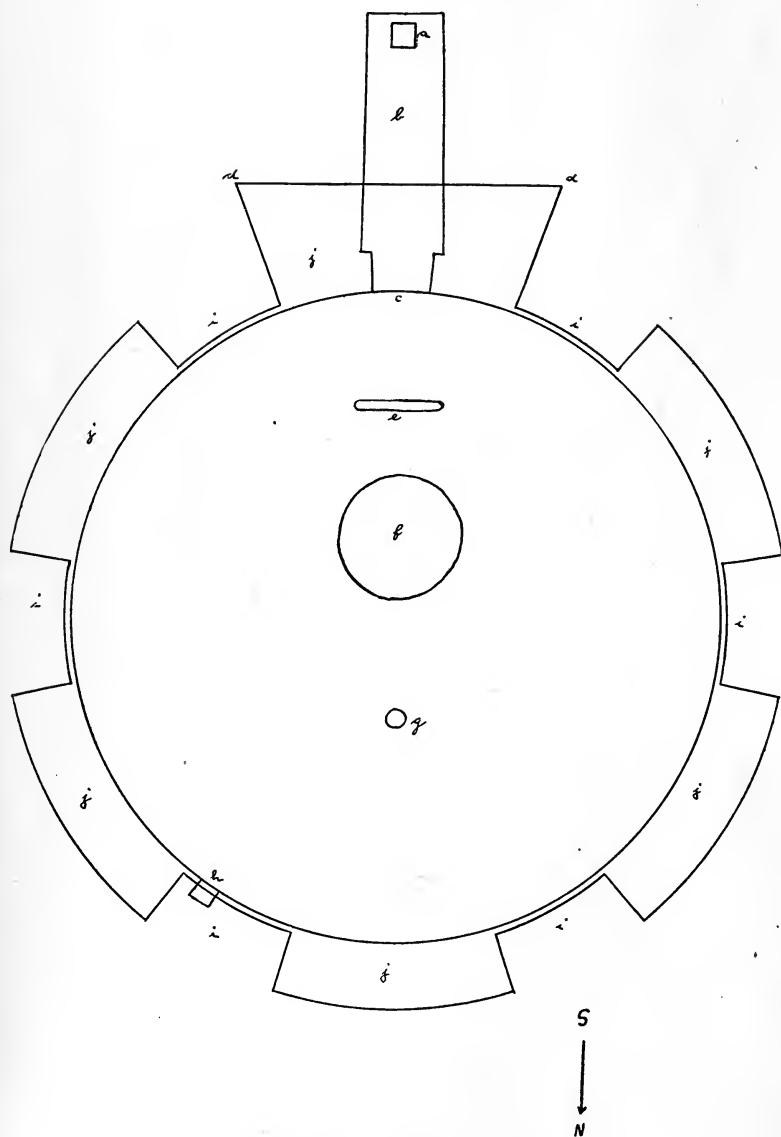


FIGURE 5. — NORMAL KIVA.

broadest (Fig. 5, *d d*). The other five are almost exactly of the same width and depth. Under the south recess there runs a horizontal passage $2\frac{1}{2}$ feet high by $1\frac{1}{2}$ foot wide, roofed with planks of split cedar (Fig. 5, *b*). Its floor is a continuation

of the floor of the kiva. At a distance of 7 feet from the lower wall, this passage turns upward at right angles and, rising vertically just behind the back wall of the south niche, it emerges from the ground at the level of the kiva roof. The vertical passage grows quickly smaller as it rises, until at its mouth it is less than a foot square (Fig. 5, *a*).

In front of the opening of the horizontal passage into the kiva and about $2\frac{1}{2}$ feet from its mouth, there is an upright slab of stone 2 feet wide, $2\frac{1}{2}$ feet high, 2 inches thick.¹ (See Figs. 5, *e*, 8, and 9.) A line drawn from the entrance of the passage through the centre of the slab and continued across the floor would bisect the other two principal features of interest; namely, the fireplace and the "sipapu." The firepit is a round depression in the floor 3 feet in diameter and 8 inches deep, filled with tightly packed wood ashes. The "sipapu" is a small hole in the floor, barely large enough to admit the hand and 5 or 6 inches in depth. It lies about midway between the fireplace and the back or north wall of the kiva. (See Figs. 5, *g*, and 9.)

The purpose of these various features of kiva construction is very difficult to determine. There seems, however, to be both a ceremonial and a utilitarian object served by each of them. For instance, the six recesses have been taken by some students of the subject to represent the six cardinal directions which are recognized by the pueblo peoples of to-day; *i.e.* north, south, east, west, the zenith, and the nadir. This may very well be the case, but the six buttresses which separate the said niches are strictly utilitarian in purpose, in that they support the entire weight of the roof in a way most economical of space and masonry.

In the case of the passage also we are confronted by the same difficulty. It is obvious, from the extreme smallness of its ascending part, that it could not have been used as an entrance to the chamber; while its position, and the fact that its walls are seldom smoked, proves that it could not have been a chim-

¹In other localities this slab is sometimes replaced by a masonry wall of about the same height and width, and in a few cases by a low curving wall. See Fewkes, *loc. cit.*, also Morley, *loc. cit.*, p. 602, and Nordenskiöld, *Cliff Dwellers of the Mesa Verde*.

ney. It has been called both a "ceremonial entrance" and a "ventilator."

Without entering into a discussion on this subject, which has been most efficiently treated by Dr. Fewkes in a recent paper,¹ in which he puts forward the ventilator theory, it may be remarked that when the roof is in place, and a fire is lit in the fireplace, the passage *does* act as a ventilator and aids very greatly in keeping all the air of the chamber fit to breathe. On the other hand, the highly specialized form of the passage and its almost invariable southern orientation have led others to believe that it may have had some ceremonial significance. It seems probable that the truth is to be found in a compromise. Ceremonial observances might easily connect themselves with so necessary a part of the kiva, and this process once started, religious conservatism would tend to fix and specialize features which were primarily utilitarian.

The slab of stone or masonry wall, which is found between the passage entrance and the firepit, has been called both an "altar" and a "deflector." Here again it seems that the use of this object may have been twofold: it no doubt tended to spread the fresh air which came down the ventilator, and it also corresponds closely to the altars of modern Rio Grande Pueblo kivas. There is nothing incompatible in the two functions.

The purpose of the firepit is sufficiently obvious, but the small opening in the floor, which, following Dr. Fewkes, I have called the "sipapu," is more puzzling. This little hole, often made by sinking the neck of a broken olla in the adobe, is a very constant feature, not only here, but also in other parts of San Juan. In the modern Hopi kivas, a hole, not unlike these ancient examples, is called the "sipapu" or symbolic entrance to the Underworld, and plays an important part in many ceremonials.

Under the northeast buttress or pilaster of all the ceremonial rooms examined there is let into the lower wall a small niche or cupboard, about 10 inches long by 6 inches high and 10 deep (Fig. 5, *h*, and Fig. 6, *h*). This may be seen in the photograph (Fig. 9); on the left another photograph (Fig. 7) also shows clearly the difference in level between the

¹ Fewkes, 'Ventilators in Ceremonial Rooms.'

regular kivas and the living-rooms. The kiva at the left of the picture is an intramural example built on a higher level.

The masonry of the kivas is superior to that of the living-rooms, the stones being better shaped and laid up in fairly regular courses. In one feature the kivas here differ markedly

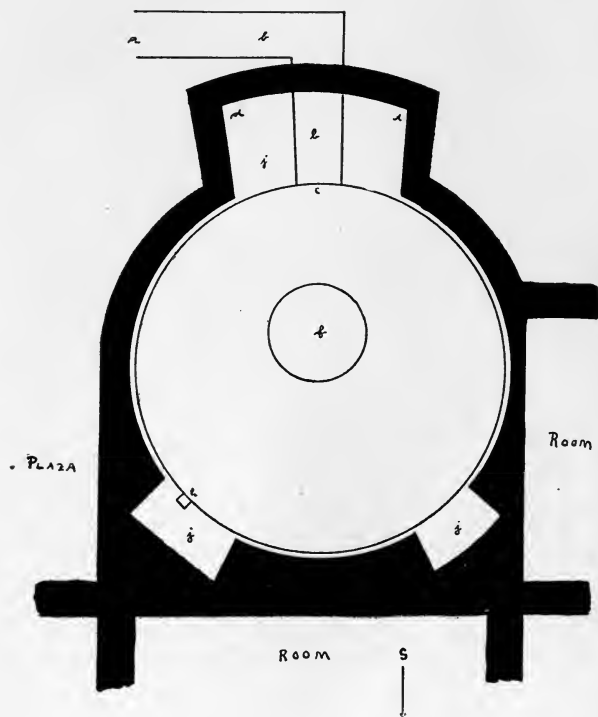


FIGURE 6. — INTRAMURAL KIVA.

from those to the east. On the Mesa Verde and McElmo an excavation was made and a kiva was built in it—a solid structure of stone. Here, however, it is really little more than a hole in the ground, the lower wall and the six pilasters which support the roof being merely a veneer of masonry on the naturally close-packed earth. The backs of the recesses, except the large southern one (Fig. 8), the floors of all of them, and the sides of the pilasters are left in the native clay soil. This was kept from caving in by baking it with fires to the consistency

of soft brick, and then coating the hardened surfaces with many layers of plaster. This process was apparently perfectly efficient, as the back walls of the recesses are still firm and strong, and, although quite unsupported by masonry, have not in any case given way or crumbled in. Upon removal of a section of the lower wall, which was not over three inches thick, the ground behind it also was found to have been baked in the same manner as the upper parts. This had been done before



FIGURE 7. — INTRAMURAL KIVA.

the building of the wall. Such a method as this could only have been employed in a clayey soil, and is probably a purely local development.

Intramural Kiva.—The room somewhat to the right of the middle in the plan of the building (Fig. 4) and shown at the left of Figure 7 was found, on excavation, to be a kiva (Fig. 6). It is somewhat smaller than the other ceremonial rooms, having a diameter of 21 feet 6 inches. It also differs from them in that it is built above ground, on the level of and directly among the living-rooms, and lacks several characteristic features.

In common with the others it has the circular shape, the large south recess with the horizontal passage under it, the fireplace and the small niche in the lower wall. On the other hand, it differs from the others in that it is built in a square chamber, having been made round by filling in the corners with masonry; it has only two recesses besides the southern one, and it did not contain either altar or "sipapu." The horizon-



FIGURE 8. — INTERIOR OF KIVA.

tal passage, moreover, opens to the side instead of in a vertical direction. (See Figs. 4 and 7.)

How many other ceremonial rooms of this nature may be scattered through the pueblo it is impossible to say, but it would seem that the religious needs of the people must have been amply cared for by the great number of kivas in the open.

Burial Mounds. — The burial places of the community lay to the south of the south and north wings. They were both well-defined, low mounds of dark earth, easily distinguishable from the reddish adobe soil of the mesa. The southern mound had been somewhat dug over by pottery hunters and the burials much disturbed; bones and broken pottery lay everywhere on

the surface. We nevertheless examined the place carefully, recovering a fair number of crania and a few pieces of pottery. The north mound, however, had been left practically undisturbed, and here we uncovered twenty-eight burials and with them a considerable amount of pottery, ornaments, and other objects. There must have been other cemeteries in the neighborhood of the pueblo, as the number of skeletons found by us



FIGURE 9. — INTERIOR OF KIVA.

was quite disproportionate to the size of the settlement. Diligent search and much fruitless trenching failed, however, to hit upon them.

The north mound, which was about 80 feet long and 30 feet wide, was perhaps 5 feet thick at the centre, sloping off at the edges to the level of the surrounding ground. It was composed of dark earth, quite distinct from the red soil of the neighborhood. This darkness appears to come from the admixture of organic substances such as would naturally be present in the refuse of the village. Broken and split bones of animals and birds, quantities of charcoal, and numberless potsherds were everywhere present, particularly in the upper

layers of the mound. From this it would appear that the cemetery was also used as a refuse heap, and owes, perhaps, the greater part of its mass to *débris* from the pueblo.

The burials were almost all placed just upon the top of the red subsoil; several, however, were found in shallow depressions scraped in it, but in no case was the body covered by the red soil. No definite orientation of the burials was observable. The bodies were placed here and there without relation one to another. The majority of the individuals were laid on the



FIGURE 10. — GRAVE AND CONTENTS.

side, the knees drawn up toward the chest, the elbows flexed over the knees, and the hands placed in front of or beside the face (Fig. 10).

Pottery was buried with about one skeleton in five, but where it was present there were enough pieces to bring the general average up to about one piece for every skeleton unearthed. One burial had no less than ten pieces placed with it in the grave.

When one or two pots only were deposited with a body they

were set in front of the face; if more were to be interred, they were usually laid beside the hips, either in front or behind; while with the skeleton mentioned above, the pieces were disposed in such a way as nearly to encircle the body, several large bowls being nested together in front of the face. We found no example of the practice, common in certain localities, of inverting a bowl over the head.

Articles of personal adornment of an imperishable nature were limited to beads made of olivella shells and of sections of hollow bone. Such objects were taken from the earth below the head and shoulders, indicating their use as necklaces. A few bone scrapers and chipped knives were uncovered in the neighborhood of skeletons, but not close enough to warrant definite association. No arrowheads, club-heads, or axes were found in the immediate vicinity of any burial. From this it would seem unlikely that weapons were placed with the dead.

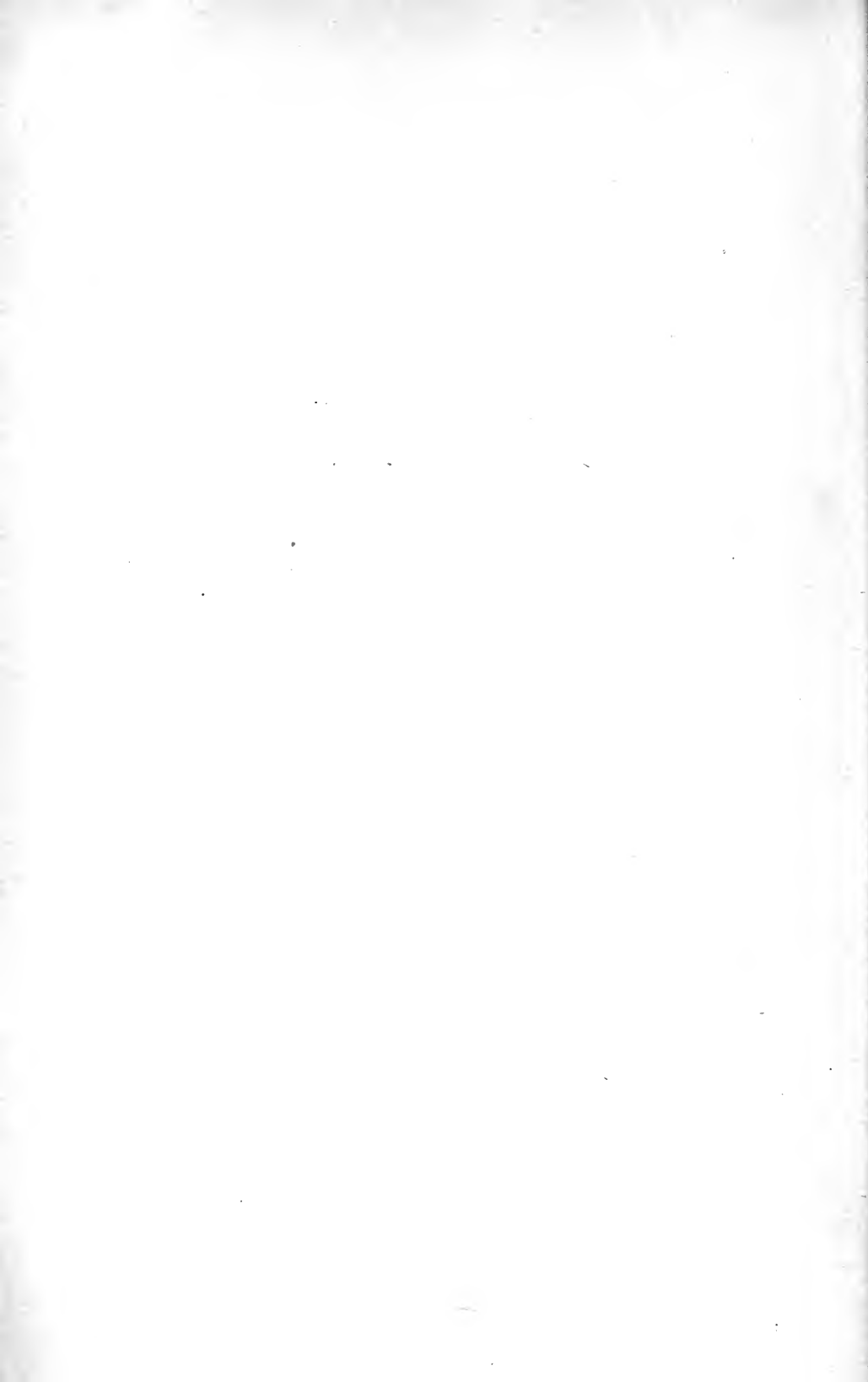
Collections. — The collections from the excavation consist of skeletal remains, pottery, vessels and pipes, ceremonial objects of stone and pottery; bone awls, skin-scrapers, and needles; beads of shell, bone, stone, and pottery; stone axes, polishing stones, sandal stones, and various kinds of clipped implements such as knives, spear-heads, and projectile points.

Because of the exposed position of the ruin there were recovered no objects of basketry, textiles, or wood. No trace of metal was found.

The material is now deposited in the Museum of the state University of Utah. A report upon it will be presented as soon as I am able to visit Salt Lake City and study the collections adequately.

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ARCHAEOLOGICAL NEWS¹

NOTES ON RECENT EXCAVATIONS AND DISCOVERIES; OTHER NEWS

WILLIAM N. BATES, *Editor*
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GENERAL AND MISCELLANEOUS

DENMARK. — **Roman Graves at Lolland.** — Four Roman graves were unearthed on the island of Lolland, Denmark, containing many ornaments and other objects which have been placed in the National Museum at Copenhagen. (*Röm.-Germ. Kb.* III, 1910, pp. 22 f.)

MACEDONIA. — **Prehistoric Mounds.** — In *Ann. Arch. Anthr.* II, 1909, pp. 159-164 (pl.), A. J. B. WACE and M. S. THOMPSON report briefly upon the mounds near Salonica, at Pella, at Palatitsa, and in the district of Pydna, Macedonia, examined by them in the summer of 1909. They are of three kinds: 1. small, steep, and conical mounds, presumably burial tumuli; 2. tall, steep, and oval mounds with flat tops, which are prehistoric sites; 3. tall, steep, and large mounds with flat tops having an area of several acres, which are the sites of Greek cities. The position of forty-nine different tumuli is recorded.

NECROLOGY. — **Heinrich von Geymüller.** — Baron Heinrich von Geymüller, whose most important work is *Die Baukunst der Renaissance in Frankreich* (2 vols., 1898-1901), died at Baden Baden in December, 1909, aged seventy. He was a distinguished connoisseur of the architecture of the Renaissance. (*S. R., R. Arch.* XV, 1910, p. 168; *Chron. Arts*, 1910, p. 6.)

Osman Hamdy Bey. — The death of Hamdy Bey has deprived Turkey of a distinguished figure in the field of archaeology. Born at Constantinople in 1842, the son of the Grand Vizier, Edhem Pasha, at the age of fifteen he went to Paris, where he studied painting under Gustave Boulanger. He attained considerable proficiency as a painter and was a frequent exhib-

¹ The departments of Archaeological News and Discussions and of Bibliography of Archaeological Books are conducted by Professor BATES, Editor-in-charge, assisted by Professor C. N. BROWN, Miss MARY H. BUCKINGHAM, Mr. L. D. CASKEY, Miss EDITH H. HALL, Mr. HAROLD R. HASTINGS, Professor ELMER T. MERRILL, Professor FRANK G. MOORE, Professor CHARLES R. MOREY, Miss M. L. NICHOLS, Professor LEWIS B. PATON, Professor A. S. PEASE, Professor S. B. PLATNER, Dr. N. P. VLACHOS, and the Editors, especially Professor MARQUAND.

No attempt is made to include in this number of the JOURNAL material published after June 30, 1910.

For an explanation of the abbreviations, see pp. 140, 141.

itor in Paris. A large canvas of his hangs in the University Museum in Philadelphia. In 1881 he became director of the Imperial Ottoman Museum, which he made one of the great museums of the world. The present Turkish law relating to antiquities was due to him. In 1882 he founded a School of Fine Arts in Constantinople, becoming its director and continuing his connection with it through life. Among his publications are *Architecture ottomane*, and, with T. Reinach, *Une nécropole royale à Sidon*. (*C. R. Acad. Inscr.* 1910, pp. 71-75; *Arch. Anz.* 1910, p. 1; also, with portrait, *R. Arch.* XV, 1910, pp. 407-413.)

John H. Haynes.—John Henry Haynes died of tuberculosis, at North Adams, Massachusetts, June 3, 1910. He was born in 1849, and graduated at Williams College. From 1892 to 1896, and from 1898 to 1900, he took part in the Babylonian Expedition of the University of Pennsylvania to Nippur, and for a portion of the time was in charge of the actual work of excavation. (*Boston Herald*, June 3, 1910.)

Henry d'Arbois de Jubainville.—In *R. Arch.* XV, 1910, pp. 267-286 (portrait), is a very appreciative account of the life and career of Henry d'Arbois de Jubainville (December 5, 1827-February 26, 1910), by S. REINACH. His work in the fields of prehistoric and mediaeval archaeology and history was of great importance.

Matthäus Much.—Matthäus Much, vice-president of the Anthropological Society of Vienna, died at Vienna, December 17, 1909, aged seventy-eight years. He was the author of works on prehistoric times and antiquities. (*S. R.*, *R. Arch.* XV, 1910, p. 168.)

Ivan Alexandrowitch Weselovsky.—The director of the museum of the Hermitage, Ivan Alexandrowitch Weselovsky, died at St. Petersburg, November 9, 1909, aged seventy-four years. He was not a man of learning by profession, but a man of taste. (*S. R.*, *R. Arch.* XV, 1910, p. 168.)

SERVIA.—**Miscellaneous Antiquities.**—In *Jh. Oest. Arch.* I. XII, 1910, Beiblatt, cols. 147-204 (27 figs.), N. VULIĆ publishes a number of miscellaneous antiquities found by him in Serbia, Dalmatia, and Montenegro, including seventy-four Latin inscriptions.

TURFAN.—**The Third German Expedition.**—In *Z. Ethn.* XLI, 1909, pp. 891-916 (22 figs.), A. GRÜNWEDEL reports on the third Turfan expedition. Numerous Graeco-Buddhistic tempera paintings were found, largely in dug-out caves and holes, which the author describes and classifies, according to their nearness to late classical influence, in five groups: (1) the Gandhara style; (2) the style of the knight with the long sword; (3) the old Turkish style; (4) the late Turkish style; (5) the Lamaistic style, which reaches as late 1400 A.D. The paintings in styles (1) and (2), painted usually in three tiers of nearly square pictures on the four walls of underground chambers, are most beautiful and impressive. Above the Buddha-preaching scenes is often found a frieze representing a stream with fishes, snails, ducks, and lotus flowers, recalling the Roman provincial artists' fondness for such decoration.

TURKESTAN.—**The French Expedition of 1906-1909.**—In *C. R. Acad. Insc.* 1910, pp. 55-68 (2 pls.), P. PELLIOI reports upon the French expedition of 1906-1909 to Chinese Turkestan. Near **Toumchouq** numerous sculptures, chiefly heads, were found in the remains of a temple destroyed by fire about 800 A.D. At the temple **Douldour-âqour**, west of Koutcher,

important manuscripts, some in languages of Central Asia now dead, were discovered. The mural paintings in the artificial grottoes at **Qyzyl** and **Qoum-tourâ** examined by Grünwedel were photographed. At **Touen-houang** the grottoes, which number about five hundred, were explored. Some are as early as the fifth century A.D., and are important for Chinese art of the Wei dynasty; while those of the seventh and eighth centuries show the decadence under the T'ang. The most important discovery was a great collection of manuscripts walled up in a niche in 1035. Most of them are in Chinese, but some are in Sanscrit and Tibetan and one fragment is in Hebrew.

EGYPT

GERMAN EXCAVATIONS IN 1908-1909.—In *Klio*, IX, 1909, pp. 478-483, L. BORCHARDT reports upon the work of the Germans in Egypt in 1908-1909. The Prussian *Papyrusunternehmen* excavated at Abusir el-meleg, Darb Gerse, and Dime but found non-literary papyri only. The Ernst Sieglin Expedition continued the excavation of the mortuary temple of Chephren near the second pyramid at Gizeh, some of the details of which are given. *Ibid.* pp. 483-489, the same author summarizes the results of Reisner's excavations in the cemetery west of the pyramid of Cheops. These include the excavation of the mortuary temple of Menkara, and the finding of a considerable number of statues and other museum objects. He also gives an account of Lythgoe's excavations at the pyramids of Lisht.

EXCAVATIONS DURING THE WINTER OF 1909-1910.—During the past winter much important archaeological work has been done in Egypt. At **Abydos** E. Naville and H. R. Hall cleared the tombs of Den and Perabsen, and found among other things mud sealings of Perabsen and Sekhemb; also clay jar sealings including one of "Zer" or Schesti; a great quantity of bone pins; pieces of wood and ivory inlay; a large collection of flint implements; a crystal vase which seems to show that Den is not Usaphais; and a hawk name incised on pottery which may prove to be that of a king of the first dynasty not yet recorded. On the eastern side of the Royal Tombs Naville found a mud floor on which were piled in regular order large unbroken pots. Several large statuettes of Osiris, on which the paint was still fresh, and remains of pottery furnaces also came to light here. North of the Royal Tombs T. E. Peet found numerous objects ranging in date from the sixth to the eighteenth dynasty, and a great cemetery of the common people of early times. At **Quft** (the ancient Coptos) R. M. Weill and A. J. Reinach found a quantity of stelae giving the names of the kings of the eighth dynasty, hitherto supposed to hold merely nominal sovereignty south of the Delta. In the **Valley of the Kings** Theodore Davis and Harold Jones opened several tombs for the most part empty. An inscribed piece of mummy cloth found in a jar discovered by Mr. Davis in 1906 shows that Tutankhamen ruled at least six years. At **Karnak** the work of restoration on the Hypostyle Hall has been completed. Between this part of the temple and the sacred lake a colossal statue of Usertsen I was found in a fine state of preservation. At **Assassif** H. S. Whitaker discovered the tomb of Men-kheper-ra-senb, a high priest of the time of Thothmes III. (*Athen.* March 19, 1910, p. 349.) *Kunstchr.* XXI, 1910, cols. 502-504, quoting from the London *Times*, re-

ports upon the work of the British School of Archaeology the past year. At **Meydum** an important tomb was excavated. There was a passage 13 m. long, from which led a cross-shaped hall 9 by 6 m. In it was a sarcophagus of red granite, the oldest granite sarcophagus known. The blocks which cover the roof of this hall are $5\frac{1}{2}$ m. long, $2\frac{1}{2}$ m. wide, and a metre thick, weighing about forty tons. The grave chamber is 5 m. high. The sarcophagus had been plundered. A second tomb, 9 by $4\frac{1}{2}$ m., had been cut out of the rock. This had not been opened before, yet the body had been robbed, evidently by the workmen who walled up the tomb. An examination of the eastern side of the pyramid revealed the presence of numerous masons' marks by which the date may be determined. At **Memphis** it was found that the ancient city was more damaged by the building of Cairo than had been supposed; but the depth of the soil to be removed was less than had been imagined, being about $3\frac{1}{2}$ m. Near the temple remains of a great chapel of Amenophis III were found. The foundations of the great court of Apries already known go down to a depth of about 14 m. Among the things brought to light were a complete portrait head of Amasis, some fragments of Aramaic records of Persian date, and a large bronze door ornament with the long title of Psammetichus I. From the potteries discovered it is possible to study the process of manufacture of glazed ware in the time of Augustus.

THE ETBAI DISTRICT.—**Some New Inscriptions.**—In *S. Bibl. Arch.* XXXI, 1909, pp. 319–323 (5 pls.), F. W. GREEN publishes a number of graffiti in Egyptian, Himyaritic, Coptic, Greek, Nabataean, and Cufic that are found in the Wady Gadami and Wady Hamama, which flow through the sandstone plateau that skirts the western side of the district between the Nile and the Red Sea lying to the north of the Hammamat road to Koser. (See *A.J.A.* XIV, p. 100.)

MAHEMDIAH.—**Excavations in 1909.**—In *C. R. Acad. Insc.* 1909, pp. 764–774, J. CLÉDAT discusses briefly the location of Mount Casius, which he identifies with the mound now called Mahemdiah at the west end of Lake Sirbonis, the modern Lake Baudouin. The character of the region is very like what it was in the days of Herodotus. Excavations carried on at Mahemdiah in 1909 brought to light the public baths dating from the fifth or sixth century A.D. The structure is about 20 m. square, and in an excellent state of preservation. A small temple of gypsum, 9.60 m. long by 6 m. wide, was also partially uncovered. Four cemeteries have been found so far, two of Roman and two of Byzantine date. Confirmation of the correctness of the identification of the site is found in an inscription in which KACIOC occurs as a man's name in Roman times.

MEROE.—**Recent Excavations.**—J. GARSTANG has discovered at Meroe a high altar of the great temple of Ammon with two terra-cotta tables of offerings lying on the ground before it. An inscribed tablet, containing prayers for protection from injury, was found near by. The altar, four feet high and four feet broad, is of black stone, and the sides are sculptured with reliefs of Horus and Thoth Anubis, the Nile deities, the Queen and King. The King is kneeling with the High Priest standing in front of him, offering an oblation. A secret chamber was discovered one hundred yards distant behind the sanctuary, in which the oracle was probably worked. (*Nation*, March 24, 1909, p. 301.)

BABYLONIA AND ASSYRIA

NEW TEXTS OF NEBUCHADNEZZAR. — In *S. Bibl. Arch.* XXXI, 1909, pp. 324-326 (pl.; fig.), S. LANGDON publishes a cylinder of Nebuchadnezzar, now in the Royal Scottish Museum, that is a duplicate with slight variants of the Sippar cylinder in the British Museum; also a fragment of a cylinder of Nebuchadnezzar in the Bodleian Library that is a duplicate of a fragment recently published by Ungnad.

AŠŠUR. — **The Discoveries by the German Expedition.** — In *S. Bibl. Arch.* XXXII, 1910, pp. 41-54, T. G. PINCHES summarizes the results of the recent German excavations at Aššur, the ancient capital of the Assyrian empire (see *A.J.A.* XIV, pp. 100-101). In the northeast corner of the mound the great temple of the god Aššur built by Ušpia, one of the earliest kings, has been excavated; and near it the palace of Shalmaneser I has also been discovered. The temple of Anu and Abad is now found to have been erected by Aššur-rêš-iši, father of Tiglath-Pileser I, about 1150 B.C., and to have been rebuilt by Shalmaneser II about 850 B.C. The building-inscription of Aššur-rêš-iši has been discovered, and also of Tiglath-Pileser I, who in his annals claims to have restored the temple.

NIPPUR. — **A New Fragment of the Babylonian Flood Story.** — In *Researches and Treatises of the Babylonian Expedition of the University of Pennsylvania, Series D*, V, 1910, pp. 1-65, H. V. HILPRECHT publishes a fragment of a flood-narrative that was found by him in Nippur. The stratum from which this tablet comes indicates that it dates from about 2100 B.C. It contains the beginning of the story of the flood, and is similar in general to the flood-narratives that have been known hitherto. In Dr. Hilprecht's opinion it is more similar to the Biblical narrative than either of the two accounts that have been known previously. In the same volume he publishes a tablet of an ancient king of Gutí, who describes himself as a ruler of Babylon who reigned at Nippur. Gutí was the region in which Mount Nisir was situated, which, according to the Babylonian narrative, was the place where the ark rested after the flood. The deluge tablet is also discussed by HILPRECHT in *S. S. Times*, LII, 1910, p. 159; by T. G. PINCHES and F. HOMMEL in *Exp. Times*, XXI, 1910, pp. 364-327; and by A. LOISY, *R. Arch.* XV, 1910, pp. 209-211.

TELLO. — **The Excavations of 1909.** — In *C. R. Acad. Inscr.* 1910, pp. 152-157, L. HEUZEY reports briefly upon the excavations of G. Cros at Tello in 1909. The most important discovery was a fortification wall of unbaked brick, built by Goudea. Both sides of it were uncovered for about 100 m. It is about 10 m. thick, and in places is still 8 m. high. A large rectangular building was also found, besides implements of flint and of copper, terra-cottas, inscribed clay tablets, vase fragments, and particularly some new fragments of the stele of Goudea.

A New Brick-Stamp of Naram-Sin. — In *S. Bibl. Arch.* XXXI, 1909, pp. 286-288 (pl.), L. M. KING publishes a brick-stamp of Naram-Sin that was found at Tello, in southern Babylonia. It furnishes us for the first time evidence of the erection of a building in Lagash by a king of Akkad during the period of Semitic supremacy.

SYRIA AND PALESTINE

EXCAVATIONS IN PALESTINE.—In *Bibl. World*, XXV, pp. 21-32; 97-105; 296-308 (11 figs.), D. D. LUCKENBILL summarizes the results of the excavations of recent years in Palestine, and discusses the conception of the early religion of that country which is to be gained from archaeology.

ALEPPO.—**Hittite Tablets.**—In *Pal. Ex. Fund*, XLII, 1910, pp. 42-53, C. R. CONDER publishes in transcription and translation seven tablets, written in Semitic Babylonian, that have been found at Aleppo, Yuzgat, and Boghazkeui.

'ARD KHALDI.—**A Recent Exploration.**—In *Pal. Ex. Fund*, XLII, 1910, pp. 99-106 (7 figs.), R. A. S. MACALISTER describes certain remains of unknown age, at a place called 'Ard Khaldi in the village of 'Abeik, near Beirut. These consist of rock-hewn graves and stone sarcophagi, remains of a building constructed of large stones, and a monolithic altar.

CARCHEMISH.—**Hittite Monuments.**—In *Ann. Arch. Anthr.* II, 1909, pp. 165-184 (8 pls.), D. G. HOGARTH discusses various Hittite monuments found by him in the vicinity of the ancient Carchemish in the spring of 1908. Carchemish is the modern *Jerablus*, but it is not clear whether it was the site of the Graeco-Roman Europus. Four reliefs excavated by the British in 1876-79 and still on the site are reproduced. Near Amani is a flat mound called *Tell-el-Ghranim* from which various Hittite seals were said to have come. At *Kellekli* were found two slabs of black basalt, one with a male figure upon it, and the second with the lower parts of two figures and a mutilated Hittite inscription in four lines. *Tell-Basher* is a large and imposing mound, probably to be identified with the ancient Pitru. Hittite seals and other antiquities purchased from natives were said to have come from it. At *Tell-Ahmar* were found two winged lions inscribed with cuneiform writing much defaced. The text on the eastern one alone is partly legible. Six fragments of a large basalt stele with a male figure about 3 m. high and the head of a smaller figure were discovered in a shallow excavation. At another spot were six fragments of an oblong stele upon which were sculptured the lower part of a man standing on a bull. Five of them bear Hittite symbols in relief, constituting the longest Hittite inscription known. Six other fragments of sculptures are recorded from this site, which is perhaps to be identified with Til-Barsip. Three Hittite sculptures at *Aleppo* are also noticed. *Ibid.* pp. 185-186, L. W. KING attempts a translation from a squeeze of the inscription on the lion at the east side of the principal gate at Tell-Ahmar. He dates it in the ninth century B.C. and attributes it to Shalmaneser II.

GEZER.—**A General Report of the Excavations.**—A summary of the results of six years' excavations at Gezer, taken largely from the quarterly reports of R. A. S. Macalister to the Palestine Exploration Fund, 1902-09, is published by H. THIERSCH in *Arch. Anz.* 1909 (cols. 347-406; 29 figs.). The full and definitive publication in English is now in preparation. While differing in some points from Macalister's conclusions, Thiersch gives him high praise for accomplishing almost single-handed an extraordinarily exacting task; but he criticises as dangerous the policy of laying the entire financial, personal, and scientific responsibility upon one man, with insufficient funds and without the assistance even of a professional

architect, to say nothing of experts in Egyptology and Aegean culture. The interest of the site, lying as it does at a strategic point between Egypt, Jerusalem, and the sea, is historical, political, and cultural rather than artistic. Five periods are distinguished. I. *Pre-Semitic*, 3000–2000 B.C., when the bare, rocky hill was first occupied and fortified by a race of short men, in the neolithic stage, who lived in caves in the rock and burned their dead. II. *Amorite*, 2000–1500 B.C., the first of three Semitic periods, when a taller, stronger race appeared, who laid out or buried their dead without burning, and have left evidence of human sacrifice and ritual cannibalism; intercourse with Egypt, twelfth dynasty. III. *Canaanite*, 1500–1000 B.C., beginning with the conquest by Thothmes III and rebuilding of the city wall on the line that remained practically unchanged through all subsequent periods; more advanced civilization and closer connections with Egypt, especially eighteenth to twentieth dynasties; substitution of offerings of lamps for human sacrifice; in the last two centuries, 1200–1000, Philistine domination, with very advanced artistic work of Cretan and Egyptian origin. IV. *Israelite*, 1000–500 B.C., beginning with the reign of Solomon and showing some falling-off in grade of civilization; Cypriote pottery; Assyrian influence and occupation in the seventh century. V. *Hellenizing*, 500 B.C. to the end, beginning with the Babylonian captivity and including the Seleucid and Maccabaeal occupation. In Roman times the population, now physically degenerate, moved to the more southerly site of the modern village, but the acropolis on the higher western summit of the hill was again fortified by Crusaders in the twelfth century. The most remarkable features of the site are the huge tunnel leading to a spring under the western summit, which dates from the first or second period and is connected with traditions of the Flood; the burial chamber in the eastern summit, where the funeral customs of the first two periods are especially shown; and the old Canaanite sanctuary in the saddle between the two summits, where a stone base for a wooden pillar, surrounded by burials of new-born infants, suggest the worship of a great nature goddess by the sacrifice of the first-born. The extraordinary series of megalithic monuments found here, ten or twelve huge oblong stones standing on a common stylobate and most of them upright to the present day, which are usually accepted as representing twelve divinities, is considered by Thiersch as more probably commemorative of some event or claim, whether they were erected by Canaanites or Israelites.

JERICHO.—*The German Excavations.*—In *Pal. Ex. Fund*, XLII, 1910, pp. 54–68, S. A. Cook summarizes the results of the German excavations at Jericho as reported in various German periodicals. The great city wall was unearthed, displaying an extraordinary degree of engineering skill in the laying of its large stones. At the northern end of the city the remains of a fine building, apparently a citadel, were discovered. In strata of the late Jewish or Hellenistic period jar handles were discovered, bearing the divine name Yah or Yahu in Aramaic letters. In Canaanite levels there were numerous infant jar-burials, associated with Cypriote and late Mycenaean imported ware. The archaeological evidence is far from confirming the account of Jericho in the Old Testament. The Canaanitish walls are not overthrown to any great extent, and there are no signs of any considerable conflagration. Joshua 6:24 records that the vessels of iron were

preserved by the Israelites, but it is now known that iron was not in use among the Canaanites, and no iron has been found in the Canaanite level of Jericho. Moreover, the statement that Jericho was not rebuilt until the time of Ahab is not confirmed by the archaeological evidence, which shows a continuous occupation of the city from the earliest times. In regard to the chronological determination of the strata on the two hills of the mound, Professor Cook thinks that the conclusions of the German excavators are open to considerable doubt. A similar report of the excavations at Jericho, accompanied with similar doubts in regard to the correctness of the German chronological conclusions, is given by E. DE KNEVETT in *Exp. Times*, XXI, 1910, pp. 353-355.

KHIRBET BEL'AMEH. — *The Great Water Passage.* — In *Pal. Ex. Fund*, XLII, 1910, pp. 108-111, G. SCHUMACHER describes a rock-hewn tunnel at Khirbet Bel'ameh, the Biblical Bileam. It is apparently a water tunnel similar to that discovered at Gezer, and shows that Bileam is a city which dates from the Canaanite period. About four hundred paces from this tunnel there is a huge limestone monolith which was probably an ancient object of worship.

MOUNT EPHRAIM. — *Ancient Tombs.* — In *R. Bibl.* VII, 1910, pp. 113-128 (2 pls.; 13 figs.), F. M. SAVIGNAC describes the results of an expedition for the exploration of the ancient tombs of Mount Ephraim. These tombs all belong to the Graeco-Roman period, and are provided with ornamental façades of exceptional delicacy of execution. The plates and figures give copious illustrations of the ground plans and present appearance of these tombs.

SEPPHORIS. — *A Hebrew Inscription in Mosaic.* — In *C. R. Acad. Insc.* 1909, pp. 677-683 (2 figs.), C. CLERMONT-GANNEAU publishes a mosaic from Sapphoris, the ancient Diocæsareia, in Galilee. It consists of conventional patterns in black, white, and red, with a much injured Hebrew inscription in the middle. It dates from the third or fourth century A.D. and was probably part of the pavement of a synagogue. The writer discusses the text of the inscription.

ASIA MINOR

HITTITE MONUMENTS. — In *S. Bibl. Arch.* XXXII, 1910, pp. 168-174 (6 pls.), G. DE JERPHANION describes four small Hittite monuments in various parts of Asia Minor, two of which have previously been published.

AEOLIS. — *An Unidentified Greek Town.* — An unidentified Greek town lying along an elevation on the south bank of the Pythicus, between Myrina and Aegae, has been visited by numerous archaeologists since 1881. A brief description, with plans and illustrations of the remaining walls, is given by A. CONZE in *Jb. Arch.* I. XXV, 1910, pp. 1-8. The ruins lie on two heights, each of which contains more than one rocky peak. These heights were occupied and fortified in the Hellenistic and Byzantine periods, but the Roman settlement was on the lower western slope and unfortified. The present inhabitants of the district live at Güsel Hissar, a few miles to the southwest.

BOGHHAZKEUI. — *An Account of the Excavations.* — A brief illustrated report of the results of the excavations at Boghazkeui, exclusive of inscriptions, is given by O. PUCHSTEIN in *Arch. Anz.* 1909, cols. 489-526 (12

figs.). Although the site is at an important stage on the route from the Black Sea south into Syria, it has remained unused, save for an unpretentious village, since the great Hittite capital, contemporary with the Mycenaean civilization in Greece, was destroyed by fire; hence the main features of what then survived are easily traceable to-day. There is a very elaborate system of defence, with double and perhaps triple walls, set with towers and built on high, stone-faced embankments through which tunnels are cut for postern gates. These walls not only surround an extensive area of irregular surface, but run through it in various directions, dividing it into distinct regions which have their own elevations of rock for especial strength. An Oriental but individual type of temple is seen in the large sanctuary of the chief god, in one of the low-lying districts and in three smaller ones in the higher part. These all have a large court surrounded by rooms or separate dwellings, with a gate of more than one story at one end and the temple proper at the other, each consisting of several apartments. A sleeping-room for the god, with stone platform for a couch, is a constant feature of these buildings. The large temple is enclosed by a vast system of store-houses for the property of the god, in some of which the pithoi remain sunk in the ground. The walls, which were burnt in the destruction of the city, consisted of a timber framework filled in with baked bricks, a structure which rested directly on the rough stone foundations in the smaller temples and upon massive *orthostatae* in the large one. Even the fortification walls were of this brick-and-timber construction in their upper part. Both the postern gates and the city gates, flanked by huge towers in the main fortifications, have a curious parabolic shape, due to the arched passages running at an oblique angle to the line of the walls. The huge stones which form the framing of the city gates are in one instance carved on the outside with a pair of fierce lions, and in another have on the inner side a young warrior in an attitude of command (Fig. 1), perhaps the portrait of the king who founded or at least fortified the city about 1400 B.C. Two deposits of cuneiform tablets have been found, inscribed in Babylonian and in the yet undeciphered national language, and are known to contain matter of great historical interest, besides treasure accounts and other such documents.



FIGURE 1.— HITTITE RELIEF AT BOGHAZKEUI.

CHAI-KENAR.— *Prehistoric Figurines.*— In *Ann. Arch. Anthr.* II, 1909, pp. 145-148 (2 pls.), T. E. PEET publishes two prehistoric terra-cotta figurines from Chai-Kenar, twelve hours northwest of Adalia. They repre-

sent the upper part of the body of a woman. The features and arms are rudely indicated, and the ornamentation consists of V-shaped lines cut in and filled with a white substance. They are probably of neolithic date.

CILICIA.—**Hellenistic and Christian Remains near Seleucia.**—Some observations on the Hellenistic remains of Olba and early Christian remains at Meriamlik, two sites near Seleucia in Cilicia, were presented at the March (1909) meeting of the Berlin Archaeological Society by E. HERZFELD and S. GUYER. **Olba**, an inland site on the spurs of the Taurus, was the head of the pirate state of (western) Cilicia Tracheia in the two centuries between Alexander and the Roman conquest and the home of the family of priest-princes calling themselves Teucrids. The great temple of Zeus Olbius, built by Seleucus I, Nicator, and repaired or added to about 60–50 B.C., and at many times under the Roman emperors, is in a remarkable state of preservation, and is the most important monument in Cilicia. The capitals are examples of early Corinthian, comparable to those of the tholos at Epidaurus and the Alexandrian capitals of Miletus. The carving on a street gate is of great beauty. It shows both Greek and Roman forms of acanthus and others like Early Italian Renaissance. A temple of Tyche, of the first century A.D., seems to have the ground plan of a Tuscan temple such as is sometimes found in Syria. The building inscriptions and long lists of priests with native names are of great interest. **Meriamlik** was the home of the worship of St. Thekla, who succeeded in the fifth century A.D. to all the attributes and local honors of the virgin goddess Athena and her earlier predecessor, the nature goddess. The saint is known through the Acts of Paulus and Thekla, dating from about 200 A.D., and through two books by Basil, bishop of Seleucia about 450, who has given a complete picture not only of her worship but of the complex life of his city at that time. The earliest church, the apse of which is preserved, may date from the second century, but the great basilica was built by the Byzantine emperor Zeno, 474–491 A.D. A crypt or lower church under the basilica, with Greek Doric columns, consists of a number of rooms, some from the time of Zeno, and some probably pre-Constantinian. This crypt or cave is an important feature in the legends of the saint, and it may be the primitive place of Christian worship for the Seleucians. The finest monument here, however, is a smaller domed church of the fifth century, with basilica ground plan. It confirms Strzygowski's assertion of a pre-Justinian development of the domed basilica. Other points of great interest invite more thorough study of this region with excavation. (*Arch. Anz.* 1909, cols. 433–450; plans.)

PERGAMON.—**A Temple of Demeter.**—A great sanctuary and temple of Demeter has been discovered at Pergamon. The temple is known from inscriptions to have been erected about 262 B.C. in honor of Boa, the mother of the Attalid dynasty; and a vestibule was added to it in Roman times. Inside the sanctuary were altars of Hermes, Asclepius, Helios, Zeus, and other gods. There were also found fragments of a statue dedicated to Demeter, a relief representing the goddess standing near an altar holding a torch in her left hand, part of a statue of Asclepius, heads of Hermes and Eros, and four Roman portrait heads. (*Nation*, May 5, 1910, p. 468.)

PHRYGIA.—**Greek Inscriptions.**—In *Cl. R.* XXIV, 1910, pp. 76–81, W. M. CALDER discusses three inscriptions from Phrygia, one of which he

had already published in the London *Times* (*A.J.A.* XIV, p. 102). A second inscription reads οἱ ἑορταζόμενοι ἐν τοῖς | Γούλλου γάμοις | ἀνέθεντο νείκην αὐτῷ. It was found at Dorla cut by a sharp instrument on a rough slab, probably by one of the wedding guests.

RHODES.—**The Danish Excavations.**—In giving an account of the results of five years' work in Rhodes by the Danes, at the June (1909) meeting of the Berlin Archaeological Society, K. F. KINCH described the two chief monuments found at Lindus, viz. a ship's prow built of stones which was erected by the officers and crews of certain vessels engaged in a naval war in the middle of the third century B.C., and a rock-cut grave relief representing the scene buildings of a theatre with four inscribed stelae standing on the podium or stage; date about 200 B.C. A small town which existed only about one hundred years, 650–550 B.C., has been excavated at Vrulia, on the southern coast. It lies on a peninsula which was fortified by a single line of wall across the tongue on the land side. A sanctuary found outside the wall resembles the shrine excavated at Cnossus by Dr. Evans. In the necropolis at the foot of the same hill there were found forty-three children's burials in clay jars and thirty-three burials of adults, the latter with one exception being cremations. (*Arch. Anz.* 1909, cols. 570–572.)

SARDIS.—**Proposed Excavations.**—The Turkish government has granted a *firman* to the Princeton Syrian Expedition for the excavation of the ruins of Sardis. (*Class. Jour.* V, 1910, pp. 137–138.) The work, under the direction of Professor Howard Crosby Butler, has begun. A preliminary report will appear in the next number of this JOURNAL.

GREECE

AETOLIA AND ACARNANIA.—**Excavations in 1908.**—No new excavations were undertaken in the enclosure of the temple of Apollo at Thermon, as questions concerning the expropriation of the land still remained to be settled. At **Kryo Nero**, three hours west of Thermon, the temple of Aphrodite Syria was found. Ten inscriptions of the second century B.C. have to do with the manumission of slaves. This temple was sometimes called the "temple of the Syrian Aphrodite in Phistyon," and the remains near by known as "Palaiokastro" may now be identified with the ancient town of Phistyon. At **Calydon** architectural fragments of the temple of Artemis Laphria were found. Inscriptions of the third and second centuries B.C. confirm the name. Remains of a tower of Mycenaean date were also discovered. A tomb yielded some gold ornaments. Other tombs of no particular importance were opened on various sites. (*G. SOTIRIADES*, Πρακτικά for 1908, pp. 95–100.)

ARGOS.—**Inscriptions.**—In *B.C.H.* XXXIII, 1909, pp. 445–466, W. VOLLGRAFF publishes twenty-five inscriptions found at Argos. No. 22 is a fragment from the account of the adventures of people who had consulted the oracle of the Pythian Apollo; it is to be compared with the stelae commemorating cures at the Asclepieum at Epidaurus. No. 25 is apparently part of a report of sessions of the Boulé at Argos in the Roman period.

ATHENS.—**A New Marine Inscription.**—In *Ath. Mitt.* XXXV, 1910, pp. 37–60 (fig.), J. SUNDWALL publishes a new marine inscription set

up on the Acropolis, which contains a list of indebted trierarchs. It is to be dated in 365/4 B.C. (Ol. 103, 4). Most of the marine inscriptions down to the time of the reforms introduced after the battle of Chaeronea belong to the fourth year of an Olympiad. It is, therefore, probable that these records were inscribed on stone once in four years. The dating of the exceptions can be revised to fit this theory: *I.G.* II, 789 B, Ol. 101, 4; 794, Ol. 105, 4; 803, Ol. 109, 4; 804, Ol. 111, 4.

The Restoration of the Erechtheum.—In *Πρακτικά* for 1908, pp. 224–226 (pl. with 5 figs.), N. M. BALANOS reports the completion of the restoration of the Erechtheum, which has been carried on from time to time since 1838. In the porch of the Caryatids some of the stones of the foundation were replaced by blocks of Piraic limestone; several ancient pieces of the parapet and moulding were put back in place; an iron beam supported by iron rods was put in above the Caryatids, so that they no longer support any weight; the modern block of the architrave inserted in 1844 was replaced by the ancient pieces which have since been found; and finally four *lacunaria*, one of which had been broken into five pieces, were put in place. Some ancient pieces of marble were restored to their places in the doorway leading from the porch of the Caryatids; and the “well of Poseidon” was cleaned and, as far as possible, given its ancient appearance.

COLONUS.—**Recent Discoveries.**—I. N. SVORONOS, while investigating the topography of the hill of Colonus Hippius, has discovered the “chasm” in the sanctuary of the Erinyes in which the scene of Sophocles’s *Oedipus Coloneus* is laid. The chasm, which is 15 m. in depth, was situated below the foundations of a small modern house on the ancient road from Thebes. The chief landmark of Colonus having once been identified, the other precincts mentioned by ancient writers were discovered without difficulty. It appears that Sophocles was topographically correct in all his descriptions of places in the *Oedipus*. Thus the altar of Poseidon and the Plutonium were found to answer exactly to the descriptions given in the drama. Moreover, it was possible to establish the site of the Academy. This led to the discovery of the boundary of the road leading from Athens to the Academy, on which were situated the tombs of distinguished historical personages of Athens. (*Nation*, May 5, 1910, p. 468.) In *Τὸ ἐν Ἀθήναις Ἑθνικὸν Μουσεῖον*, I. N. SVORONOS publishes three plates (123–125) and a full account of these discoveries.

CORINTH.—**Mould of a Bust of the Athena Parthenos.**—At a recent meeting of the American School at Athens, D. M. ROBINSON described a mould for making terra-cotta statuettes, which was found at Corinth and represents the bust of the Athena Parthenos. The type is instructive as giving details of the ornaments on the helmet, supplementing the evidence of the gold medallions from Kertch. The mould is probably of Hellenistic date. (*Cl. R.* XXIV, 1910, p. 100.)

DELOS.—**New Inscriptions.**—In *B.C.H.* XXXIII, 1909, pp. 472–522 (pl.), P. ROUSSEL and J. HATZFELD publish fifty-four inscriptions found at Delos in the years 1905–1908. A note on No. 19 is added by Hatzfeld, pp. 522–525.

EUBOEAE.—**Excavations in 1908.**—In *Πρακτικά* for 1908, pp. 101–113 (5 pls.; 9 figs.), G. A. ΠΑΠΑΒΑΣΙΛΕΙΟΥ reports upon the excavations in Euboea in 1908. At *Platanistos*, near the ancient Carystus, the rectangular

building supposed by Bursian to be the Posideum of Strabo was uncovered. It is divided into two large rooms, the eastern one being 65.45 m. long and 40 m. wide, and the western, 40.70 m. long and 35.75 m. wide. The eastern part is older than the western. This was not a temple, but probably a guard-house, and the oldest part was erected before the Persian wars. An inscription carved on the long wall he restores thus: [H]ελλε[ν]ι[κ]ῶ[ν] | [μεδίσαν-
τας Κα]ρυστιος | ἐπιμορ[έ]σατο. It is, therefore, not the Posideum, which must be sought on a promontory to the right as one approaches Geraestus. At **Carystus** remains of a square Roman building having on each side seven columns with Ionic bases were excavated. It dates from the time of the Antonines, and may have been a temple of Apollo and Artemis. Near **Vromousa** five tombs were opened, one of which belonged to a little girl and contained two dolls, a small silver ring, and fourteen little pitchers and dishes of various kinds.

NAXOS.—**Excavations in 1908.**—During the year 1908 excavations were carried on in different parts of the island of Naxos. On the site of the temple near the sea parts of four more Doric columns were found. Tombs were opened in various places, the most important of which was a beehive tomb near **Komiake**. It was in a good state of preservation, but had been plundered in antiquity. Its diameter was 3.40 m. and its height 2.60 m. It had a small dromos closed by a wall 1.10 m. from the chamber. No bones were found in it and only a few fragments of undecorated pottery. At the small Mycenaean acropolis at **Kastraki** a wall of unworked stones was partially excavated and vase fragments discovered, but the work on this site was not completed. (K. STEPHANOS, *Πρακτικά* for 1908, pp. 114–117.)

SICYON.—**New Inscriptions.**—In *Πρακτικά* for 1908, pp. 145–152, A. S. ARVANITOPOULLOS publishes six new inscriptions from Sicyon, one of which is Latin. It reads, *C. Julio Aug(us)ti L(iberto) Epagatho Ithacus amicus*. Remains of funeral monuments show that the road from Corinth lay near the sea and followed the direction of the modern highway. The writer thinks he has found evidence to confirm his theory that Sicyonian artists worked at Pagasae.

THESSALY.—**Excavations in 1908.**—In *Πρακτικά* for 1908, pp. 152–223 (8 figs.), A. S. ARVANITOPOULLOS reports the results of his excavations in Thessaly in 1908. A hill called **Palaiokklesi**, not far from Zerelia, proved to be a small prehistoric site. Remains of a small temple of the fourth or third century B.C. were found upon it. At **Phthiotic Thebes** important excavations were conducted on the citadel. In the third, *i.e.* Greek, stratum remains of a temple 9.36 m. by 11.45 m. were found. It was probably distyle in antis, with the lower courses of stone and the upper part of sundried brick. It was partly built of materials from an earlier temple of similar character which stood on the same site. A broken tile with the letters ΟΑΙ, which the writer restores as [Π]ολι[ᾶ]δος, seems to prove that this was the temple of Athena Polias. Hundreds of bronze rings, bracelets, and cooking utensils, as well as figures of terra-cotta, Corinthian vases, and gold and silver ornaments, belong to the older temple and date from the eighth century B.C. and later. Below this was a prehistoric stratum distinguished by hand-made vessels and a complete lack of objects of metal. Four subdivisions may be distinguished, the oldest dating from about 2500 B.C. At **Pagasae** nine towers were carefully examined and new stelae

and fragments found (see *A.J.A.* XIV, p. 109). Near the temple and stoa are remains of large buildings which probably indicate the site of the market-place. Mycenaean remains have also been found at Pagasae.

Excavations in 1909.—In *Ann. Arch. Anthr.* II, 1909, pp. 149–158 (6 pls.), A. J. B. WACE and M. S. THOMPSON report upon their excavations in Thessaly in 1909. At the mound of **Palaiomylos**, half an hour west of Lianokladi, three clearly marked strata were found. In the first was fine hand-made pottery with red designs on a white ground. The pattern consisted of waved and curved lines almost concealing the background, and thus differs from the ware of Sesklo and Dimini. In the second stratum was hand-made pottery like the black lustre ware of the second stratum of Orchomenus. In the third stratum a type of ware not previously known came to light. It was hand-made, with geometric patterns in black on red. A three-roomed house was excavated, containing fragments of “Minyan” ware. No metal objects were found on the site. At **Tsani Magoula**, three quarters of an hour east of Sophades, eight successive settlements were found, one above the other. The chronological sequence of the pottery was: polished red ware; red on white ware, with both solid and linear patterns; black on red ware; three color ware; gray on gray ware; black lustre ware; coarse wares; encrusted ware; and late gray ware. The different kinds often extend over several periods. Thus, the polished red ware was found in the first four settlements, and the coarse wares from the third to the eighth settlement. The site was probably first settled about 2500 B.C. and was occupied until about 1100 B.C., when the eighth settlement came to an end.

SKOTOUSA.—**Prehistoric Finds.**—In *Ath. Mitt.* XXXV, 1910, pp. 61–64 (3 figs.), N. I. GIANNPOULOS describes objects of the Stone Age found on a hill near Skoutousa in Thessaly.

ITALY

RECENT ARCHAEOLOGICAL WORK IN ITALY.—In the London *Times* of March 26, A. ASHBY of the British School in Rome gives an interesting summary of recent archaeological research in Italy. In the Roman Forum the work is still going on slowly. The excavation of the Basilica Aemilia is continued; the prehistoric necropolis has been almost entirely filled in, and the Republican house near the Arch of Titus has been completely cleared. On the Palatine researches are carried on under the foundations of the eastern portion of the house of Livia. In the course of building operations within and without the city walls of Rome various finds of interest have been made, such as the discovery in the Villa Patrizi of the fragments of the base of a white marble candelabrum decorated with small niches containing statuettes; of a fine portrait bust of the first century A.D. outside the Porta Portese; and of several fragments of sculptures which adorned a peristyle found within the area of the Gardens of Sallust. On the site of the former Villa Spithoever a fine stretch of the wall which enclosed the city of Rome in the fifth (?) century B.C. has recently been fully exposed to view (see p. 378). It is built of slabs of gray-green tufa, about 10 inches in height and 20 inches in length and width, and is certainly earlier than the so-called Servian Wall. The excavations at Ostia are being continued. A considerable portion of the city has been examined; a street leading to

the theatre, with a portico on its west side, has been cleared; of the objects discovered the most important is a fine statue of a lady of the Imperial house, with the attributes of Ceres, probably dating from the reign of Hadrian. On the property of the King of Italy near by was discovered one of the three public baths which Pliny the Younger mentions as existing. North of Rome, at Ferento, near Viterbo, ancient baths and the interior of the theatre have been cleared; in the former a number of Roman inscriptions came to light. Pre-Roman tombs were discovered at Terni, Pavia, Este, near Padua, and at Belmonte and Fermo, in Picenum. At Pompeii a certain amount of work has been done, including the excavation of a pre-Roman necropolis, and much attention has been devoted to the restoration and preservation of the houses discovered in 1902-05. (*Nation*, April 14, 1910, pp. 386-387.)

CAMARINA.—**Excavations in 1909.**—Earlier excavations of the necropolis at Camarina were described in *Not. Scav.* 1907, pp. 484 ff. (*A.J.A.* XII, 1908, p. 368). To the number of tombs then investigated 147 more were added in 1909, making a grand total of 1643. None of the later number were of great interest. The lower half of a female statue clad in a *peplos*, and a female head in terra-cotta wearing the *modius*, are pictured and described by P. Orsi in *Not. Scav.* 1909, pp. 379-382 (3 figs.). Both fragments are of the fifth century B.C.

FLORIDIA.—**Siculan Tombs.**—In March, 1909, three tombs of the Siculan period were opened at Floridia, Sicily. They had already been

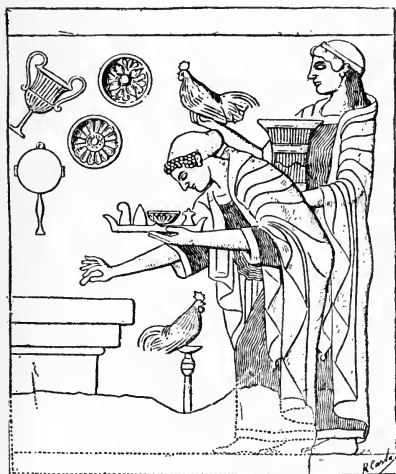


FIGURE 2.—TABLET FROM LOCRI.

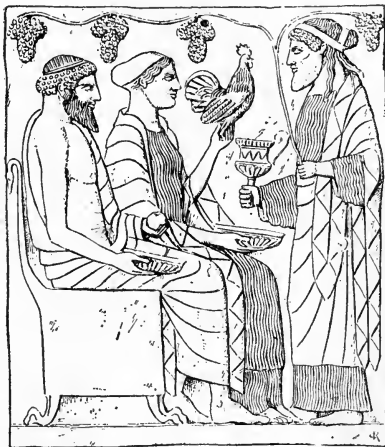


FIGURE 3.—TABLET FROM LOCRI.

violated, probably during the Greek occupation; but one of them yielded a vase of the inkstand shape and of Mycenaean decoration of the third period. P. Orsi assigns the tombs to the end of the second period, which he would date conservatively between the fourteenth and tenth centuries B.C. (*Not. Scav.* 1909, pp. 374-378; 5 figs.)

LOCRI EPIZEPHYRII.—**The Excavations of 1908.**—In *Boll. Arte*,

III, 1909, pp. 406-428 (27 figs.); 463-482 (25 figs.), P. Orsi describes the results of his third campaign at Locri Epizephyrii, April to June, 1908 (see *A.J.A.* XIV, p. 244). Below the hill at Mannella are two walls, one 110 m. long beside the river; and the other, 4 to 7 m. from it, serving as a protection against landslides. Within the space between these walls a great mass of ancient remains was found. The different objects date from the middle of the seventh to the middle of the fifth century B.C. They were not lying in chronological order, but promiscuously. The most numerous and most important of them were terra-cotta tablets which vary in size from 26 by 22 cm. to 26.5 by 24.5 cm., and from 5 to 8 cm. in thickness. The designs were stamped, but as no vestige of a mould was discovered the writer concludes that they were not made on the site. Many still preserve traces of color. They may be divided into eight general groups: 1. offerings to a chthonian deity (Fig. 2); 2. offerings to other divinities (Fig. 3); 3. a



FIGURE 4. — TABLET FROM LOCRI.



FIGURE 5. — TABLET FROM LOCRI.

procession or dance with offerings; 4. toilet scenes; 5. the abduction of a maiden (Fig. 4); 6. the mystic chest with an infant (Fig. 5); 7. picking fruit; 8. miscellaneous. There are many varying types in the different groups. The figurines found, representing men, birds, and animals, were not important. A great number of vases of local make came to light, an especially common type being a small scyphus with bands in imitation of Corinthian vases. Italo-Corinthian vases were common, but only two of bucchero ware were discovered. A fragment of a red-figured Attic cylix was inscribed ΠΑΝΦΑΙΟΣ ΕΡΓΟΙΕΣΕΝ, but in general the sherds of Attic vases were unimportant. A few finds of ivories and bronzes were also made. The writer believes that a sanctuary of Persephone or Demeter existed here in early times, and that it reached the height of its prosperity in the sixth century B.C. In *Philologus*, LXIX, 1910, pp. 114-125, W. A. OLDFATHER discusses the significance of the tablets for the cults of the town, and concludes that they came from some temple on the acropolis probably rebuilt about the middle of the fifth century B.C.

The Excavations of 1909. — P. Orsi describes in *Not. Scav.* 1909, pp. 319-326 (6 figs.), the campaign of 1909. Chief among the discoveries were:

a series of chamber-tombs excavated in the living rock, resembling the Siceliote type of Sicily, and yielding some interesting articles of bronze (*fibulae* of most archaic type); a sanctuary of Persephone, with remains of an inscribed *labrum* of marble; a small sanctuary of Athena; a necropolis of the archaic and Hellenistic periods; a *cippus* for a votive offering with the inscription *ΤΕΙ ΘΕΟΙ ΔΕΚΑΘ ΚΛΕΑΙΝΕΤΟΞ ΝΙΚΟΜΑΧΟΥ*; and two large bronze stamps, of two lines each, with the inscriptions *C FLAVII CORINTHI* and *Q. AMBIVI. FIRMI.*. ORSI ascribes the former stamp to the Flavian era, the latter to a later date.

MINEO. — **Recent Discoveries.** — Signs of the existence of the ancient necropolis of Mineo, Sicily, were found in the discovery of a tomb of the third century B.C., which yielded among other articles a cylindrical mortuary urn of lead with decorative pattern, a covered saucepan, a bowl, and a covered casket, perhaps a jewel-box, of bronze. (P. ORSI, *Not. Scav.* 1909, pp. 383-386; 4 figs.)

OSTIA. — **Excavations in 1908-1909.** — A plan of the excavations at Ostia in 1908-09 is given with explanatory notes by D. VAGLIERI in *Not. Scav.* 1909, pp. 411-412. During the autumn of 1909 excavations were carried on in the tombs between the road of the tombs and the highway that is now recognized as the *Via Ostiensis*. A sarcophagus with an inscription by her mother to a 24-year-old Iulia Beneria disclosed the young woman's skeleton, and between its thighs that of an infant (*Not. Scav.* 1910, pp. 11-12; ill.). VAGLIERI suggests the possibility that the woman was buried in a cataleptic state, and gave birth to the infant in the tomb (but the skeleton of the woman appears in the photograph to be resting in a perfectly undisturbed attitude). A long inscription to C. Domitius Hermogenes makes possible the accurate restoration of its mate (*C.I.L.* XV, 3353). A metrical Greek inscription deserves mention (*ibid.* p. 15). The site of the looked-for city gate has been determined, and a portion of its inscription found, commemorating a restoration by P. Clodius Pulcher (*ibid.* p. 30). Excavations were continued along the *Via del Teatro* and *Via Ostiensis*, disclosing, among other less important fragments, a base erected by Glabrio, patron of the colony, to *Salus Augusti* (*ibid.* pp. 58-72; 10 figs.).

Epigraphic Gleanings. — In *Mél. Arch. Hist.* XXIX, 1909, pp. 341-364 (pl.), J. CARCOPINO publishes seven inscriptions on stone, nine brick-stamps, and a number of marks on *dolia*, all found at Ostia and Porto. One inscription in Porto found on Monte Giulio reads, *Silva* | *n[o] sa[cr(um)]*; | *P(ublius) Luscius R[...]|anus sacerdos* | *Dei Liber[i]s patris* | *Bonadiensium* | *Silvano Sancto*, | *cui magnas gratias a[go] conducto aucupiorum*. The word *Bonadiensium* may refer to sectaries of the Bona Dea, who may then have been associated with Silvanus and Liber, but the reference is more probably to a *vicus* in Rome. The dedicator probably hired the fowling privileges of some of the marshy land in the neighborhood. The temple of Bacchus-Liber was on the eastern mole, and the inscription was found not far away. The inscription *C.I.L.* XIV, 325, has been found again. A graffito published by Lanciani (*Not. Scav.* 1889, p. 81): *C. Licinius Cho? Felix* | ... *omnibus suo* . | *curis feliciter*, is found to read: *Nonna omnibus succ[ur]is feliciter VII*. The numeral may belong to another graffito. Remains of a building, perhaps a bath, were found on the property of Prince Giovanni Torlonia, at Porto. The marks on the *dolia* found in an ancient cellar south of the

Carone del Sole in 1902 indicate an average of 33 *amphorae* per *dolium*, and for the entire cellar about 726 *amphorae* (190 hectolitres, 57 litres).

PALESTRINA. — **A Fragment of Sulla's Mosaic.** — O. MARUCCHI, continuing in *B. Com. Rom.* XXXVII, 1909, pp. 66-74 (pl.), his studies of Praeneste and the Temple of Fortune, has discovered, he believes, a fragment of Sulla's well-known mosaic (*lithostroton*).

PADUA. — **Discovery of Egyptian Pottery.** — Professor Moschetti has recently found at Padua some late Roman unglazed vases and with them portions of a large vessel of Egyptian manufacture. The latter belongs to a kind of ware usually having a white body and a dark blue glaze outside and a light blue inside. The Roman vases serve to date the Egyptian. Other examples of this ware have been found on the Esquiline in Rome, and a few pieces from an unknown source are in the museum at Naples. It is found in abundance in Egypt. (*Athen.* June 4, 1910, pp. 680-681.)

POLLA. — **The Tomb of C. Utianus Rufus.** — A large monumental tomb at Polla, Lucania, erected to the memory of C. Utianus Rufus (first century A.D.) is described by V. SPINAZZOLA, who also discusses the family connections of the decedent, and the identification of Polla with the ancient Forum Popilii. (*Not. Scav.* 1910, pp. 73-86; 5 figs.)

REGGIO CALABRIA. — **Hellenistic Graves.** — Eight graves, of two different types, discovered at Reggio Calabria in May, 1908, are described by P. ORSI, in *Not. Scav.* 1909, pp. 314-318 (6 figs.). Five were framed of tiles for the sides and also for the gable roof; three were rectangular chambers formed with tiles laid as in a wall, which were continued into a well-made barrel vaulting. The furnishings were poor and of late date.

ROME. — **A Piece of Ancient Wall.** — Excavation for new buildings on land formerly belonging to the Villa Spithoever has led to the uncovering of an imposing stretch of very ancient wall parallel to the Via Piemonte at the upper end of the Via S. Nicola da Tolentino. It is admirably preserved, 35.2 m. in length, 3.3 m. in average height. (G. GATTI, *B. Com. Rom.* XXXVII, 1909, pp. 119-121.)

Excavations in the Piazza Dante. — Excavations for the Postal Savings Bank have brought to light in the Piazza Dante, among other remains, a large edifice, an apsidal hall with frescoes on a white ground. (G. GATTI, *B. Com. Rom.* XXXVII, 1909, pp. 290-292; pl.)

Excavations at the Church of SS. Giovanni e Paolo. — Excavations of the Roman house underlying the church of SS. Giovanni e Paolo have been resumed. A large apartment, apparently a nymphaeum, has frescoes of the second or third century A.D. — a marriage of Peleus and Thetis or a scene from the myth of *Venus Marina* — coated over with white, probably under Christian auspices in the fourth century. O. MARUCCHI sees in this an important confirmation of the traditions regarding this house. (*B. Com. Rom.* XXXVII, 1909, pp. 122-123.)

Excavations near the Porta Pia. — In the course of excavations for the general offices of the state railways outside Porta Pia (Villa Patrizi) a section of the Via Nomentana has been unearthed, showing the usual polygonal blocks of basalt; also some remains of tombs, leaden pipes, etc.; also fragments of sculpture, including the fountain figure of a nude Ethiopian, feet in air, squirting the water from his half-opened mouth; further archi-

tectural bits, lamps, etc., and inscriptions. (G. GATTI, *B. Com. Rom.* XXXVII, 1909, pp. 132-139.)

A Cippus near the Porta Salaria.—A fifth cippus of Claudius's delimitation of the pomerium has been found in the Via Tevere, outside the Porta Salaria. It bears the serial number CIIIX and, of course, the Claudian orthography AMPLIAVIT · TERMINAVITQ. (G. GATTI, *B. Com. Rom.* XXXVII, 1909, pp. 130-132.) A small fragment of another cippus has also come to light near the Porta Maggiore (*ibid.* p. 132).

Steps of the Claudium.—Excavations about the base of the Caelian Hill at Rome in the neighborhood of the portico and temple of Claudius have disclosed eight steps, apparently belonging to a great staircase, or ramp, that led to the building from the valley below. (*Not. Scav.* 1909, p. 407.)

An Acquisition of the Museo di Villa Giulia.—The Museo di Villa Giulia has recently acquired a large Etruscan sarcophagus of nenfro adorned on all four sides with reliefs. The cover, belonging to another sarcophagus, has a reclining male figure upon it and an inscription along the edge. (*Boll. Arte*, IV, 1910, p. 79.)

A Medicus Veterinarius.—Some new inscriptions from the Roman antiquity shops are published by M. BANG in *Röm. Mitt.* XXIV, 1909, pp. 170-174. The most interesting presents for the first time a *medicus veterinarius* of a praetorian cohort.

SALAPIA.—**Sepulchral Stele of Geometric Style.**—In *Rend. Acc. Lincei*, XVIII, 1909, pp. 407-417 (pl.; 2 figs.), L. MARIANI describes a sepulchral stele found at Salpi, the ancient Salapia. The face is decorated with rhomboidal meander patterns, in the centre of which is a square, where we see represented a fibula and a complicated pendant, personal ornaments of the dead. These, which are of late iron-age type, as well as the geometric decoration of the stone, lead the author to place it between the eighth and fourth centuries B.C.

SARDARA.—**Necropolis of Roman Date.**—A series of graves containing modest furnishings of local ware was recently excavated near Sardara, Sardinia. The bodies were buried with the heads to the west and the feet to the east. The bronze coins were for the most part laid upon the breast of the corpses and belonged to Augustus, Hadrian, Caracalla, and Julia Domna. (A. TARAMELLI, *Not. Scav.* 1909, pp. 332-335.)

SERRI.—**Recent Excavations.**—The excavation on the site of the pre-Roman city on the height of S. Vittoria at Serri, Sardinia, has brought to light imposing remains of a sacred area with various edifices, among them a well, or cistern. The temple recalls certain characteristics of the prehistoric Sardinian tomb. Two rude bronze statuettes found on the site are of especial interest. One, of type not unknown, represents a standing head-man, clad in corslet and mantle. With his left hand he grasps his commander's staff; his right is raised in the attitude of prayer. The other statuette is unique. It represents a seated woman who holds in her lap an ithyphallic infant and raises her right hand in invocation. The character of the civilization to which these objects belonged is also somewhat discussed by A. TARAMELLI, *Not. Scav.* 1909, pp. 412-423.

SOVANA.—**Two Etruscan Lead Figures.**—In *Ausonia*, IV, 1910, pp. 31-39 (9 figs.), B. NOGARA publishes two lead figures found in an Etruscan chamber tomb near Sovana. One represents a nude man stand-

ing with his weight on his left leg and his right leg slightly advanced. It is 18 cm. high. The other, 16 cm. high, represents a nude woman standing with her weight on her right leg and with the left slightly behind. Both have their hands folded behind their backs. On the male figure is the inscription *zer . . . | cecnas*; and on the female, *velia | satnea*. They date from the fourth century B.C., although the vases found with them prove that the tomb dates from the sixth or seventh century B.C. *Ibid.* pp. 39-47 (5 figs.), L. MARIANI argues that these figures are *defixiones*, put into the tomb at a late date to restrain the spirits of the dead. A lead torso in the National Museum in Rome, inscribed *Titus Tregelo Celsus*, and a bronze statuette and part of a second at Rettimo were used for the same purpose. He also compares the small lead figures found at Tell Sandahannah, Syria.

SYRACUSE. — **Recent Excavations.** — Excavations conducted during the two years 1907-09 are described at length by P. ORSI in *Not. Scav.* 1909, pp. 337-374 (29 figs.). They embraced the fort Euryalus, the theatre (where a piece, probably unique, of the decorative architecture of the building was found), the temple of Athena (where an architectural bit of much earlier age was discovered), and extensive explorations in the catacombs of S. Giovanni and in certain Christian *hypogaea* in the Cappuccini region, which yielded many lamps.

TERLIZZI. — **Neolithic Remains.** — A neolithic settlement at Monteverde, near Terlizzi, Apulia, has yielded striking specimens, particularly of earthenware, which are described at length by A. MOSO and F. SAMARELLI in *Not. Scav.* 1910, pp. 33-52 (29 figs.).

TERMINI IMERESE. — **An Ancient Amphitheatre.** — Remains of an ancient amphitheatre were uncovered at Termini Imerese, Sicily, in September, 1908, by A. SALINAS, who describes them briefly in *Not. Scav.* 1909, pp. 330 f.

TERRANOVA. — **Recent Excavations.** — Further exploration of the archaic temple at Terranova, near Gela in Sicily (cf. *Not. Scav.* 1907, pp. 38 ff.; *A.J.A.* XII, 1908, p. 108), has yielded nothing of importance, further than to establish the conjecture that the east front of the temple was decorated with figures in painted terra-cotta. The excavation of seventy-one tombs of the necropolis of the sixth century B.C. was similarly without fruit, ancient plunderers having anticipated the modern. (P. ORSI, *Not. Scav.* 1909, p. 382.)

SPAIN

AMPURIAS. — **A Terra-cotta Statuette of Demeter.** — In *R. Ét. Anc.* XII, 1910, pp. 152-153 (pl.), P. PARIS publishes a terra-cotta statuette, 16.5 cm. high, recently found at Ampurias. It represents Demeter standing and holding a pig by the leg with her right hand, but it is broken off at the knees. It is of Greek workmanship in the style of the fifth century B.C.

NUMANTIA. — **The Excavations of 1909.** — The fifth campaign of excavations around Numantia (1909) was marked by the preparation of exact topographical maps and plans of the entire region and of the several parts, and by the discovery of the camp of Q. Fulvius Nobilior, dating from the first year of the war, 153 B.C. (Appian, *Iber.* 46). It is admirably situated on the brow of a hill, 6 km. to the east of the city and near the village of Renieblas. Owing to local conditions the walls of native limestone,

mostly in huge blocks, have suffered little by time, and very little digging was necessary to disclose the entire ground plan. The orientation shows that the camp was laid out in the latter part of August. The prevailing unit for large sections such as the praetoria is the *actus* of 120 feet, instead of the 100-foot unit of Polybius and of the Scipionian forts in the neighborhood. The latter show the Greek decimal system prevailing over the earlier Latin duodecimal. The barracks provide for one legion only of the two which constituted a consular army, the *Volcanalia*; for more than half the army had been destroyed in the battle of August 23. A much larger camp was later built, or at least fortified, on the same site, taking in part of the same ground. It has not as yet been possible to identify this, the tempting ascription to Mancinus, 137 B.C., proving untenable. The single finds are not numerous, but include some interesting types of weapons, besides other metal objects and coins. The missing seventh fort in the northwest corner of Scipio's enclosing line has been found and will be excavated in the next campaign, together with the important parts of Nobilior's camp. (A. SCHULTEN, *Arch. Anz.* 1909, cols. 526-548; 10 figs.)

FRANCE

ALESIA. — **The Excavations of 1909 on Mont Auxois.** — The excavations at Alesia in 1909 were carried on at four places on Mont Auxois. 1. In the space between the *cavea* of the theatre and the road to the south a semicircular wall, 0.65 m. thick, was found following the line of the theatre. At a later time cross walls, the purpose of which is not yet clear, were built. 2. At the forum many broken marble slabs were found and a much weathered female head with the hair decorated with three large flowers. 3. In the region south of the theatre many houses were uncovered which were found to have cellars. This is very unusual in Roman houses. The stairways with five, six, or seven steps were usually still in place. Many wells were also found, but what purpose they served is uncertain. In them were found bronze vessels and moulds for their manufacture. 4. The region lying to the east of this seems to have been destroyed in late Gallo-Roman times and to have been used as a cemetery. Provision has been made for preserving the buildings already excavated. (J. TOUTAIN, *C. R. Acad. Insc.* 1910, pp. 139-151; 3 figs.)

ARLES. — **The Roman Circus.** — In *B. Soc. Ant. Fr.* 1909, pp. 300-305 (3 figs.), A. HÉRON DE VILLEFOSSE calls attention to the fact that in excavating at Arles for the canal from Marseilles to the Rhone workmen uncovered a small portion of the ancient circus. The site has long been known, but not the details of the structure. A marble sarcophagus was also found.

An Inscription of the Third Century. — In *C. R. Acad. Insc.* 1910, pp. 106-107, R. CAGNAT records a dedication to a certain M. Aur. Priscus recently found at Arles. He is described as *frumentarius*, *canalicularius*, *ostiarus*, and *primiscrinus* of the praetorian camp. This is the first mention of the last two offices. The inscription dates from the third century A.D.

DORDOGNE. — **Skeletons of the Mousterian Period.** — In *C. R. Acad. Insc.* 1909, pp. 797-806 (3 figs.), Drs. CAPITAN and PEYRONY give an account of their discovery of human remains of the Mousterian period at

two sites in Dordogne. At **Pech de l'Aze** the skull of a child was found; and at **La Ferrassie** the complete skeleton of a man. With great care the latter was removed entire to the laboratory. Three flat stones and some bones which showed marks of pounding were found with it.

FRAILLICOURT. — **Roman Remains.** — In *Röm.-Germ. Kb.* III, 1910, pp. 19-22 (3 figs.), E. KRÜGER translates a paper by Jules Carlier which appeared in the *Revue Historique Ardennaise*, 1908. The writer discusses especially a glass cup found with other objects in a small terra-cotta sarcophagus, accidentally discovered near Fraillicourt (Ardennes). The cup is of white glass decorated with thick, polychrome painting, representing birds, caterpillars, and plant decoration. The cup dates from the first century A.D.

GRENOBLE. — **A Roman Altar.** — The museum at Grenoble has recently acquired a Roman altar from Valette to which an ancient head of Mercury had been attached in modern times. (H. FERRAND, *R. Ét. Anc.* XII, 1909, pp. 78-80; 2 figs.)

HAUTE LOIRE. — **Recent Discoveries.** — In *B. Soc. Ant. Fr.* 1909, pp. 332-334, U. ROUCHON reports two recent discoveries in Haute Loire. At **Bas-en-Basset** an inundation of the Loire revealed part of a Roman road. Excavations in the vicinity brought to light fragments of polychrome pottery, on one of which a woman appears carrying an amphora on her head. At **Grangeneuve**, commune of Lapte, a farmer found a jar containing about two hundred gold coins. They are Gallic imitations of the Macedonian stater and are of great purity, varying in weight from 8.50 gr. to 8.80 gr. Some of the best specimens have been acquired by the Musée Crozatier at Le Puy. *Ibid.* p. 334, H. DE LA TOUR shows that the hoard contained no type that was absolutely new, and that the coins fall into two series. The older are heavier and much less numerous than the later coins, which are the handsomer.

HYÈRES. — **The Genius of Olbia.** — In *R. Ét. Anc.* XII, 1910, pp. 73-77 (plan; fig.), H. DE GÉRIN-RICARD publishes a statue base of marble found at Hyères in October, 1909, and dating from the second or third century A.D. Only the feet remain, beside which is part of a tree trunk with a serpent coiled about it. The plinth is inscribed *Genio vicinae castellanæ Olbiensium L. Rupilius Iacchus d. d. c. s.* The monument is important as showing that even a small town in Gaul had a Genius of its own. The Massiliote colony of Olbia must be located near Hyères. Cf. *B. Soc. Ant. Fr.* 1909, pp. 343-347.

LA TURBIE. — **The Trophy of Augustus.** — In *C. R. Acad. Insc.* 1910, pp. 76-87 (3 figs.) JEAN-CAMILLE FORMIGÉ gives the results of his excavations made in 1905-1909 about the trophy of Augustus at La Turbie above Monaco. It was erected in the year 5 B.C. to commemorate the victory of Augustus over the people of the Alps. Pliny (*N.H.* III, 24) preserves the inscription. The monument consisted of a square platform, 37.80 m. on each side, above which were three steps forming a basement 34 m. square. The stones are fastened together by iron clamps one of which bears the inscription AVGVS and another A/. The second story is square, measuring 27.10 m. on each side. Traces of four stairways were found in it. The third story consisted of a circular wall 18.05 m. in diameter outside of which were placed twenty-four columns. In the intercolumniations were trophies and statues alternating. The columns rest on a base, but have Doric

capitals of marble and a Doric frieze. The metopes were decorated with bulls' heads, prows of ships, cuirasses, etc. Above all stood a statue of Augustus. The height of the monument was 46.10 m. It was thus the largest Roman trophy known. *Ibid.* pp. 94-95, M. DIEULAFOY argues that the architect took as the basis for his design the Mausoleum at Halicarnassus.

MARQUAY.—**Wall Sculptures of the Magdalenian Epoch.**—In *C. R. Acad. Insc.* 1910, pp. 16-20, G. LALANNE gives a brief account of wall sculptures of the Magdalenian epoch recently found by him in a rock shelter in the commune of Marquay (Dordogne). Carved bones, one with a reindeer head and another a horse's head, were found near the hearth; but on the walls of a gallery, in high relief, were a reindeer (1.90 m. long), a bison (1.40 m. long), and a horse (2.15 m. long). Above the horse were the heads of two wild goats, one biting the ear of the other. Behind the horse appeared the head and neck of a smaller horse. Another group consisted of a large horse, above which was an ox with head hollowed out, and below, a bison. Finally, there was a third horse. A block which had fallen from the roof had a bison in outline. These sculptures can be dated with certainty.

MONTLAURÈS.—**The Excavations of 1908.**—In *C. R. Acad. Insc.* 1909, pp. 981-995 (2 figs.), E. POTTIER reports upon the excavations made in 1908 by H. Rouzard and himself at Montlaurès. The site was not a necropolis, as had been supposed, but a large settlement, and remains of dwellings utensils, arms, toilet articles, pottery, and coins were found. Most of the coins bear the legend *NERENCN*, which probably stands for *Nerencoinon*, that is, money of the people of Naro, which was the ancient name of Narbo. The pottery is most important and consists 1. of crude vases of local manufacture; 2. the so-called "Iberian" pottery, decorated with concentric circles, wavy lines, etc., found mixed with Greek pottery of the fourth and third centuries B.C.; 3. Greek vases chiefly of the fifth, fourth, and third centuries, although a few fragments of Attic black-figured vases were found. The remains confirm the literary tradition that in the sixth century B.C. the Ligurians founded a kingdom near the mouth of the Aude with Narbonne for its capital, and that this eventually fell into the hands of the Iberians.

PARIS.—**Acquisitions of the Louvre in 1909.**—In *B. Soc. Ant. Fr.* 1909, pp. 395-404, A. HÉRON DE VILLEFOSSE and E. MICHON report forty-five acquisitions to the Louvre in 1909, the most important of which are the following: 1. A marble head of Agrippina from Athens. 2. A beardless male head from Smyrna. 3. An archaic statuette of a woman from the museum at Auxerre, probably from Crete (Fig. 6). 4. A draped statuette of a woman with head and arms missing, from Egypt. 5. A draped female figure moving to the right. Head and arms missing. Probably a figure from a pediment or an acroterion. 6. A grave relief from Niha, ten hours ride from Beyrouth. 7. Eleven Greek and Latin inscriptions. 8. Four Boeotian fibulae of bronze (published in *M. Soc. Ant. Fr.* LV, pp. 159-179). 9. The seated figure of a woman of bronze with her right arm across her breast and with her left supporting a naked child who sits on her knee; from Delphi. 10. A primitive bronze horse from Olympia. 11. A nude male figure of bronze standing with left leg advanced and with drapery hanging over the left arm. The right hand held some object now lost. 12. A bronze bust of Mercury, once used as a weight. 13. Two silver

fibulae ornamented with gold; from Dodona. 14. Three fragments of a glass cup adorned with figures. 15. A round ivory pyxis, upon which is

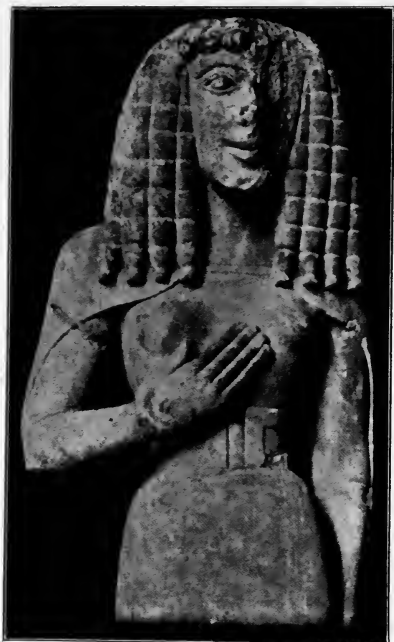


FIGURE 6. — STATUETTE OF PRIMITIVE
CRETAN STYLE.

the figure of a reclining Cupid looking at a panther. On the cover is the bust of a beardless man wearing a helmet. 16. A lead bullet for a sling, inscribed AM.

SAINT-GERMAIN. — An Inscribed Base. — In *B. Soc. Ant. Fr.* 1909, pp. 255-257, A. HÉRON DE VILLEFOSSE publishes the small bronze base of a statuette inscribed OGL · AVG · SAC | ATEVRITVS | SEPLAS · V · S · L · M, which he interprets as *Ogl . . . Aug(usto) sac(rum) Ateuritus seplas(iarius) vot(um) s(olvi) l(ibens) m(erito)*. The abbreviation OGL probably stands for the name of a Celtic god otherwise unknown. The *seplasiarii* were druggists, or dealers in cosmetics, who got their name from Seplasia, a place in Capua. The object is now in the museum at Saint-Germain.

SOISSONS. — A New Inscription. — In *B. Soc. Ant. Fr.* 1909, pp. 257-259, A. HÉRON DE VILLEFOSSE publishes a fragmentary inscription recently found at

Soissons, reading CIVITAS · SV, *i.e. civitas Su[essionum]*. Only two other inscriptions have been found here, although the town was important in Roman times. There can now be no question as to the identity of the site.

SWITZERLAND

CHÊNE-ET-PÂQUIER. — A Neolithic Settlement. — In *Z. Ethn.* XLI, 1909, pp. 963-965, V. Gross writes of neolithic remains found near the village of Chêne-et-Pâquier (Canton of Vaud) on an almost inaccessible plateau, measuring 100 m. in length by 6 or 7 m. in width, at the foot of a cliff. These include flint chips, stone axes, bone utensils, ferrules of deer horn, awls and chisels of horn and bone, files, lance and arrow heads of flint, boar teeth perforated for stringing, weaving weights, and pottery, varying from the coarsest sorts of the Stone Age, in the lower levels, to the finer kinds of the Bronze Age, in the upper strata, where some bronze objects were actually found. The wall of the cliff shows holes for the support of roof beams, and there are evidences that goats and perhaps other animals were domesticated by the inhabitants. The fauna and flora seem contemporary with the Palafittes.

GERMANY

ALZEI.—**A Late Roman Fort.**—In *Röm.-Germ. Kb.* III, 1910, pp. 17-19 (plan), E. ANTHES reports upon excavations on the site of a Roman fort at Alzei. The fort forms a nearly perfect square, 165 m. wide. Half of the west side and parts of the north and south sides have been laid bare. The whole structure was of stone; the walls have a uniform thickness of 3 m. (10 Roman feet). There was no ditch, but numerous semicircular towers, some solid, some hollow. The gate on the west side is poorly preserved. Along the west wall barracks were discovered, one of which had hypocaustic heating. The fort dates from the fourth century A.D.

BERLIN.—**An Egyptian Apparatus for Reckoning Time.**—In *Ber. Kunsts.* XXXI, 1910, cols. 156-160 (3 figs.), H. SCHÄFER publishes an ancient Egyptian apparatus for computing time, recently acquired by the Berlin museum. It consists of three parts, a narrow strip of wood with a slit in the end and an ivory handle to which a plummet was attached by a cord. Two persons were required to operate it. One sighted with the strip of wood on the North Star, while the other determined the star which was passing through the meridian at the time. By the help of tables the hour of the night could thus be found out. This specimen dates from about 600 B.C. He also publishes a stone vase pierced with a small hole and with rings cut inside, which was used as a water clock. It dates from the third century B.C. and is likewise in the Berlin museum.

COLOGNE.—**A Roman Altar-stone.**—In *Röm.-Germ. Kb.* III, 1910, pp. 1-4 (2 figs.), J. POPPELREUTER publishes a Roman altar-stone recently found at Cologne, showing an altar scene in relief. There are five figures: the officiating priest, three assistants, and a flute-player. The inscription reads: *Deae Vaglavercusti Titus Flavius Constans praef(ectus) praet(or)is em(inentissimus) v(ir)*, and is discussed by A. VON DOMASZEWSKI, who identifies the dedicator with the procurator of Dacia of the same name (*C.I.L.* III, 13793-13798) and assigns the stone to 165-167 A.D.

COSILENZIEN.—**An Ustrina of the Bronze Age.**—In *Z. Ethn.* XLI, 1909, pp. 940-943 (2 figs.), MAX EBERT describes a crematory of the Bronze Age discovered near Cosilenzien (Kreis Liebenwerda), the floor of clay, baked red, being 2.10 m. long by 1.30 m. wide, and the sides also of clay 30 cm. high. Built into the corners stood wooden uprights, one of which still measures 35 cm., evidently as supports of wooden cross-beams, some of which lay charred upon the sides of the *ustrina*. One corner of the floor was dug deeper and opened toward the side to provide a draft. The upper structure could be lifted from the floor to facilitate the gathering of the bones, and may have been renewed on each occasion.

MOELLENDORF.—**A Prehistoric Round Wall.**—In *Z. Ethn.* XLI, 1909, pp. 918-940 (12 figs.), H. GROSSE describes a prehistoric round wall in Moellendorf near Luckau. Its present circumference is about 165 m., its longer axis 50 m., and its shorter 30 m. Hand millstones, concave and convex, with a hole in the centre, a whetstone, and rude potters' tools indicate Slavic workmanship of about 1000 A.D. The provenience of the millstones and the pottery is fully discussed.

SPEYER.—**Acquisitions of the Museum.**—The new Historical Museum at Speyer, opened May 22, 1910, has acquired the fine collection of

objects from Roman graves made by Wilhelm Ludowici. It is especially rich in *terra sigillata*, which, added to the specimens already belonging to the museum, makes this the best collection of this ware in Germany. Many pieces prove that a liquid glaze was applied to the vessel before firing. All the antiquities came from graves opened at Rheinabern (Tabernae Rhenanae) 22 km. from Speyer. (E. HEUSER, *Die Saalburg*, April 30, 1910, pp. 358-361.)

AUSTRIA-HUNGARY

KARLSBURG.—**New Inscriptions.**—In repairing the foundations of the fifteenth-century church at Karlsburg over thirty stones were found with inscriptions or reliefs. One of these, a dedication to a certain *M. Ulpius Apollinarius*, is published by J. JUNG in *Jh. Oest. Arch. I.* XII, 1910, Beiblatt, cols. 139-146; fig.

NORTHERN DALMATIA.—**Recent Discoveries.**—In *Jh. Oest. Arch. I.* XII, 1910, Beiblatt, cols. 13-112 (83 figs.; 3 maps), M. ABRAMIĆ and A. COLNAGO give the results of recent archaeological work in northern Dalmatia. Remains of seven Roman roads have been found as follows: (1) From Cvijina Gradina running southwest to Pridraga; (2) from Cvijina Gradina running south to Asseria; (3) from Cvijina Gradina running southeast to Gradina Medvidje; (4) from Maslenica running northeast to Mali Halan; (5) from Duboki dol running south to Kistanje (Burnum); (6) from Medvidje running southwest to Asseria; (7) a road running southwest from Bjelina. At Gradina Smokovac, where town walls were already known, remains of a bathing establishment were brought to light. The Roman cemetery at Starigrad (Argyranthum) was further explored, and many small objects, such as terra-cotta lamps, fibulae, vessels of bronze and of glass, ornaments, coins, etc., found. These are now in the new museum at Obrovazzo. The flourishing period of Argyranthum seems to have extended from the middle of the first century A.D. to the second half of the second century.

PANNONIA.—**Two Bronze Stamps.**—In *Jh. Oest. Arch. I.* XII, 1910, Beiblatt, cols. 113-120 (3 figs.), M. ABRAMIĆ publishes two ornamental bronze stamps from Pannonia. One found at St. Valentin has the letters *milita|ntiu|m*; the other, from Carnuntum, reads *rum | omni|um*, which he restores as [*fides nume*] *rum omnium*.

VESZPRÉM.—**A Hoard of Coins.**—At Veszprém (Hungary) were found in 1908, bestowed in a pot of poor earthenware, a few iron implements and 2881 coins (almost all of the fourth century A.D.), which are described in detail by W. KUBITSCHKE and O. VOETTER in *Num. Z.* 1909, pp. 117-136 (fig.).

GREAT BRITAIN

CORBRIDGE.—**A Basrelief.**—A basrelief found at Corbridge on the Tyne, Northumberland, published in *Archaeologia Aeliana*, 1909, p. 7, and *Arch. Anz.* 1909, p. 238, is republished by S. R. in *R. Arch.* XIV, 1909, p. 468. A youth who holds a horse by the bridle stands in an aedícula. He seems to be one of the Dioscuri. A youth wearing a radiant crown approaches on a winged horse. He is more likely to be Helios than Belerophon.

GELLYGAER.—**The Excavation of the Baths.**—In the summer of 1909 the Roman baths at Gellygaer were excavated and found to be very

complete. The buildings formed a block 112 feet long, and were twice restored. Both the original plan and the final form of the buildings can be made out. Large parts of the hypocaust and many of the flue-tiles are still *in situ*. Two fragments of inscriptions were found, one of which shows that the buildings were in use at the time of Trajan's fifth consulship. (D. A. SLATER, *Cl. R.* XXIV, 1910, pp. 34-35.)

LLANDDYFNAN.—**The Exploration of Two Barrows.**—In *Proc. Soc. Ant.* XXII, 1909, pp. 368-373, E. N. BAYNES describes the exploration of two barrows recently removed at Llanddyfnan, Anglesey. The larger mound contained eight urns, one of which had three raised hoops or ribs running round it. The largest urn contained among other things a bronze knife. Near the edge of the barrow was a skeleton. The mound dates from the Bronze Age. About two hundred feet to the southeast was a smaller barrow, in which was found in a cist a skeleton which had apparently originally been wrapped in a hide or skin. A flint knife was under the head. This mound is older than the other, although it, too, probably dates from the Bronze Age.

LONDON.—**Recent Acquisitions of the British Museum.**—Among the recent acquisitions of the British Museum are: (1) A silver figure of a lion from Argos, dating from the early part of the sixth century B.C. The mane and tip of the tail are gilt. It is modelled with great spirit. (2) Two bronze mirror cases and a relief from a third. Dionysus and Ariadne are represented on the first, which comes from the Somzée collection (Furtwängler's *Catalogue* Pl. 36, 93). The relief on the second represents a Victory driving a two-horse chariot at full speed. On the third a helmeted warrior tries to drag a nude, wounded comrade from the battle. (3) A bronze figure of a deer, from Spain. (4) Upper part of a marble grave stele of fine style with a well-preserved girl's head. It is inscribed ΚΛΕΑΡΕΤΗ. (5) An ivory rattle in the form of a sistrum from Orvieto. (6) Two archaic terracottas of early Boeotian type from Lake Copais, and a youth wearing a cuirass from Tanagra. (7) Six vases of various periods, including a Dipylon bowl in fine condition and a pair of lecythi in the rare technique of about 500 B.C., in which the figures are painted in red, purple, and white on the black glaze which covers the vase. (8) Two inscribed tablets from Cnossus, presented by Dr. Evans. They belong to his "Linear Script, Class B." (*Cl. R.* XXIV, 1910, pp. 133-134.)

A Bronze Patera.—In *Proc. Soc. Ant.* XXII, 1909, pp. 414-415 (pl.), F. G. H. PRICE publishes a Roman patera of bronze found in the Thames near Walton and now in the British Museum. It is 13 inches in diameter, 3 inches high, and of fine quality. Such vessels, though plentiful in Italy, are rarely found in Britain or the north of Europe.

AFRICA

CARTHAGE.—**An Amphora Handle inscribed Baal.**—In *C. R. Acad. Insc.* 1909, pp. 997-1000, P. BERGER publishes a mark stamped on an amphora handle from Carthage which he interprets as the word *Baal*. The characters are enclosed in a square 2.5 cm. on each side.

A Municipal Inscription.—In *C. R. Acad. Insc.* 1910, pp. 135-139, A. HÉRON DE VILLEFOSSE publishes a Latin inscription recently found at

Carthage. It is a dedication in honor of Q. Vultedius Optatus Aurelianus who had been *aedilis*, *praefectus jure dicundo*, *duumvir*, and *duumvir quinquennalis* as well as *sacerdos Cererum*. Another name is thus added to the chronological list of these priests.

HENCHIR-ES-SRIRA.—**Ancient Temple and City.**—In *Mel. Arch. Hist.* XXIX, 1909, pp. 365–395 (7 figs.), L. HAUTECOEUR describes the ruins of Henchir-es-Srira, near Hadjeb-el-Aïoun, in Tunisia. On the side of an isolated rock are foundations of a temple which had two cellars and was built with its rear against the hill. Numerous stelae found here bore dedications to Saturn, who probably succeeded Baal, himself the successor of a still earlier deity. The stelae were apparently dedicated by natives. On them are symbols of Selene-Coelestis, the head of Helios, offerings or sacrificial instruments, etc. On one is an eagle, indicating perhaps a fusion of Baal-Saturn with Jupiter. One inscription is dated *VI Kal. Iul. Valeriano et Lucilo cos.*, i.e. June 26, 265 A.D. The city was about a kilometre north of the temple. Foundations of several buildings were uncovered. Many lamps and fragments of pottery were found and the site of the potters' furnaces was probably discovered.

The lamps made here were exported to Carthage, Sicily, and even to Italy. The city received its water by means of an aqueduct from springs north of Mrilah. For some time after the third century A.D. the place was prosperous, then everything comes to an end, perhaps through the Vandal invasion. An appendix (pp. 396–400; 2 figs.) contains a catalogue of the 26 hitherto unedited stelae from the temple of Saturn and notes on some of those published in *Bull. Arch. du Comité*, 1906, pp. ccii, ccxxi.



FIGURE 7. — MARBLE BUST FROM MAHDIA.

MAHDIA.—**Antiquities from the Sea.**—In *C. R. Acad. Ins.* 1909, pp. 650–671 (4 figs.), A. MERLIN describes the antiquities recovered in 1909 from the ancient ship sunk off Mahdia, Tunis. (See *A.J.A.* XIII, pp. 102–103; 374; XIV, p. 248). One of the fifty marble columns was brought to the surface and found to be 3.95 m. in length and unfluted. Most of the other

columns are of the same size, although Ionic capitals and bases of several dimensions have been found. A peculiar composite capital was also discovered with palmettes below, and on each of the four faces above, between the volutes, a griffin's head, on either side of which are wings attached to rosettes. The bronzes found are: (1) a small Hermaphrodite (0.50 m. high) similar to one found in 1907, originally used as a lamp; (2) bronze decorations for furniture, consisting of the heads of horses, mules, and ducks,

busts of Artemis, etc.; (3) a bust of Athena (0.18 m. high) probably used for the same purpose; (4) a dancing Eros (0.14 m. high); (5) the grotesque figure of an actor (0.10 m. high). In marble the most remarkable object was (1) the bust of a woman (0.70 m. high) with regular features (Fig. 7). There were also found: (2) a much mutilated statuette of Artemis (0.50 m. high); (3) several statuettes of seated children; (4) two heads of laughing satyrs; (5) two female heads much damaged; (6) the torso of a man (0.95 m. high); (7) a male bust; (8) a relief (0.56 m. long, and 0.35 m. high) representing Asclepius and Hygieia at a banquet with worshippers approaching. Two large slabs contain much injured inscriptions. One is in honor of *Μεγίστης* [Μέ]κωνος Χολλείδης, known to have lived before 322 B.C.; and the other records in 91 lines gifts made by Athenians to Ammon in the archonship of Chariclides (363-362 B.C.). Three ingots of lead are inscribed M PLANI L · F (figure of a dolphin) RV22INI; a fourth has L · PLANI · L · F · RVSSINI followed by an anchor; a fifth has CN · ATELLA F · MENE. The ship must have sailed from Piraeus, but its destination is not known. A terra-cotta lamp which belonged to the crew dates the vessel in the first century B.C.

UNITED STATES

BOSTON. — **Acquisitions of the Museum of Fine Arts.** — The most important acquisition of the Boston Museum of Fine Arts is (1) a three-



FIGURE 8. — RELIEF IN BOSTON, FRONT.

sided relief corresponding closely to the "Ludovisi throne" in shape, size, and style. Its width is 1.60 m. at the bottom, and its height 0.92 m. In the centre (Fig. 8) is a nude youth holding a pair of scales and in the pans of the scales are small nude youths holding on by a rope above their heads. On either side are draped and veiled women. Below, delicate scrolls rise from the centre toward the two corners, crowned with a somewhat flaring

ornament on the corner itself. Below these at the left is a fish, and at the right a pomegranate. On the two wings (Figs. 9 and 10) the scrolls with

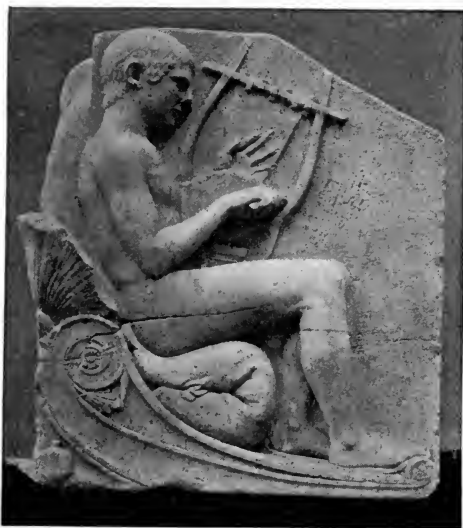


FIGURE 9. — RELIEF IN BOSTON, RIGHT WING.

the fish and pomegranate are repeated. On the right wing a nude youth is seated on a cushion playing a lyre; on the left wing sits a realistic old woman with her knees drawn up toward her body, holding in her right hand a curved object which has been chiselled away. (2) Ten vases of gray and reddish limestone, including a ceremonial lamp and "blossom bowl" with cover, of the Early Minoan period from Crete. (3) An archaic Greek statuette 0.083 m. high, representing a centaur with human forelegs. (4) A number of vases and vase fragments from Crete, not yet all put together, illustrating most of the nine periods of Minoan pottery. (5) Part of a bowl of Naucratis ware. (6) An Athenian white lecythus inscribed *Παιδῖμος καλός*. (7) Another Athenian white lecythus adorned with a youth in a red chiton holding out an alabastron to a girl. (8) Two sard intaglios, both of the Graeco-Roman period. (9) Twenty-three Greek coins, one gold, one electrum, and the rest silver. (*Museum of Fine Arts, Boston. Thirty-fourth Annual Report, 1910, pp. 55-57; also B. Mus. F. A. VIII, 1910, pp. 17-18; 3 figs.*)

NEW YORK. — **Acquisitions of the Metropolitan Museum.** — During the past year the Metropolitan Museum has acquired ten Greek and Roman sculptures. Besides the statue of the old market woman (*A.J.A. XIV, pp. 128, 129*) the more important pieces are a crouching lion, a Greek work of the fifth century; part of a crouching Venus of the same size as the one in the Louvre and of better workmanship though more broken; a life-size statue of a



FIGURE 10. — RELIEF IN BOSTON, LEFT WING.

seated philosopher, signed by an otherwise unknown sculptor Zeuxis; the head of a girl, Greek work of the fourth century. Nineteen bronzes were added to the collections, counting as one item fifteen small animals representing a Roman farmyard group (Fig. 11). Among the other bronzes are three fine Etruscan mirrors representing Peleus and Thetis, Odysseus and Circe, and Bellerophon and the Chimaera. Thirty-one Greek vases including a signed cylix of Hiero, a cylix in the style of Epictetus, a cylix inscribed *ὁ παῖς καλὸς Ἐπέλε(ι)ος*, and a fragmentary crater in the style of Amasis II were acquired. Nineteen late Greek vases which came from a single grave may have constituted a dinner set. The museum also received seven terra-cotta figurines, the head of a youthful satyr 10.7 cm. high, and a terra-cotta votive plaque of the fifth century, on which is a stamped design representing two standing women facing each other. One



FIGURE 11. — FARMYARD GROUP, ROMAN.

is playing the flute, and the other reading from a roll, while between them stands a heron. Another purchase was a Roman stucco relief, apparently representing a captive kneeling before a standing figure. (*B. Metr. Mus.* V, 1910, p. 21, fig.; p. 56; pp. 95-96, 9 figs.; pp. 143-146, 9 figs.)

PHILADELPHIA. — **Recent Acquisitions of the University Museum.** — The Free Museum of Science and Art of the University of Pennsylvania has recently acquired one of the slabs of a large Roman relief. It is divided into two panels by a vertical partition. In the right-hand panel is a standing soldier in full front leaning on his spear; in the left hand panel two soldiers, one of whom is an officer, are marching to the left. The face of the man in front and part of his body were on another block. All the figures are life size. On the back of the slab was an inscription in several lines, which have been chiselled out. Another acquisition is a heavy bronze goose neck which formed the stern ornament of a Roman ship.

EARLY CHRISTIAN, BYZANTINE, MEDIAEVAL, AND RENAISSANCE ART

GENERAL AND MISCELLANEOUS

SALAH, MESOPOTAMIA. — A Prototype for Romanesque Architecture. — J. STRZYGOWSKI publishes in *Mh. f. Kunstw.* III, 1910, pp.

1-4, views and plans of the church Mar-Jakub at Salah, whose foundation reaches into the fifth century. The plan is peculiar in that the apse and its accompanying rooms, and the narthex as well, lie on the long side, not on the narrow end, of the building. The various portions of the church are barrel-vaulted. The same plan and vaulting is repeated in the apse and transept of the church of Santullano in Oviedo in Spain.

BETTIR. — **A Byzantine Mosaic.** — In *R. Bibl.* VII, 1910, pp. 254-261 (2 pls.; fig.), H. VINCENT reports a mosaic pavement of the Byzantine period recently discovered a little to the west of the railway station of Bettir on the road between Jaffa and Jerusalem. The floor contains Greek inscriptions set in mosaic containing Christian dedicatory inscriptions. The purpose of the building to which this pavement belonged has not yet been discovered.

MISTRA. — **Work of Restoration in 1908.** — In *Πρακτικά* for 1908, pp. 118-144 (7 figs.), A. ADAMANTIOU reports upon the work of restoring and preserving the Byzantine buildings and paintings at Mistra in 1908. The most important work was done on the churches of Hagios Joannes, Hagios Theodoros, the Evangelistra, and the Appentiko.

STRENGUAES. — **Exposition of Religious Art.** — An exposition was held at Strenguaes near Stockholm from June to August, 1910, by the art societies of the provinces of Soedermanland and Nerike, to illustrate the history of art in Sweden from the twelfth to the nineteenth century. (*Chron. Arts*, 1910, p. 122.)

ITALY

RECENT DISCOVERIES. — Several discoveries are reported from Italy. In the church of S. Francesco at Lucca—for many years a barracks, but now being restored—a Madonna and Child of the fourteenth century, and a lunette of the fifteenth, have come to light; in the church of S. Dorato at Castelleone, near Diruta, Count Umberto Gnoli has discovered three frescoes by Matteo da Gualdo; at Fabriano a thirteenth-century fresco has been found in the desecrated church of S. Francesco; and in the Benedictine church of Pontida, near Bergamo, a sixteenth-century fresco of the Adoration of the Shepherds, with saints, has been brought to light, hidden behind one of the presses in the sacristy. (*Athen.* Apr. 9, 1910, p. 438.)

UNKNOWN UMBRIAN PICTURES. — E. CALZINI discusses in *L'Arte*, XIII, 1910, pp. 67-70, two unknown pictures of great interest. One is preserved in the parish church of Cancelli in the Commune of Fabriano, and represents the Madonna enthroned with saints. It is signed FRAT. FABIAN. VRBINAS. | ORD. PRAEDICATOR | PINGEBAT 1533. The frame is decorated, by another hand, with fifteen little scenes of the "Mystery of the Rosary." The picture is of importance as demonstrating the survival in the sixteenth century of the characteristics stamped on Urbinat painting by Giovanni Santi, the father of Raphael. A fresco representing the Madonna, by Giovanni Santi himself, formerly among the loaned pieces in the *Istituto delle belle Arti* in Urbino, was sold two years ago by its owner to a Florence antiquary for 200 lire.

COPIES OF MANTEGNA'S ST. CHRISTOPHER FRESCOS. — In view of the ruined condition of the frescoes representing the "Martyr-

dom of St. Christopher" in the Eremitani at Padua, the publication by W. GRÄFF, in *Mh. f. Kunstw.* III, 1910, pp. 107-109, of two good copies of these frescoes is of interest. One copy is an oil painting on paper in the Palma gallery, done about 1500, the other is in the possession of Mme. André-Jacquemart at Paris. Both were known before, but no reproduction of the Parma example had ever been published.

AQUILEJA. — Early Christian Mosaic. — Repairs to the basilica of Aquileja have uncovered an early mosaic floor about one metre below the present (eleventh century) pavement. The decoration consists chiefly of a series of portraits (donors), land and water scenes, a Jonah series, and a Good Shepherd. The inscription found on the mosaic reads as follows: * | THEODORE · FELI[X] | [A]DIVVANTE · DEO | OMNIPO-
TENTE · ET | PER · MVNVS · CAELITVS · TIBI | [TRA] DITVM ·
OMNIA | [B]JAEATE · FECISTI · ET | GLORIOSE · DEDICAS[TI].
A Bishop Theodore of Aquileja took part in the council of Arles in 314, a date not inconsistent with the appearance of the mosaic. (J. P. KIRSCH, *Röm. Quart.* 1910, pp. 117-119.)

BOLOGNA. — A Bust by Niccolò dell' Arca. — A terra-cotta bust of St. Dominic, standing at one side of the door of the sacristy of the church of S. Domenico, has been traditionally assigned to Alfonso Lombardi. Documentary evidence shows that the bust is the work of Niccolò dell' Arca. (G. P. Rivista *d' Arte*, 1909, pp. 303-304.)

CASCIA. — Unknown Works of Art. — M. Rocchi gives, in *L' Arte*, XIII, 1910, pp. 150-151, an account of unedited works existing in Cascia, near Spoleto, or its vicinity. These include a fifteenth-century Madonna in wood and a group of Tobias and the Archangel, polychrome in wood (Fig. 12), Umbrian workmanship of about 1400, both in a small thirteenth-century church at Cascia; a fresco in the choir of the monastery of S. Antonio, signed by Nicola da Siena; a tempera panel representing the Madonna, by an Umbrian quattrocentist, at Mantignano; and a Romanesque silver cross at S. Giorgio.

CESENA. — An Unknown Work by Lorenzo Bregno. — By the aid of documents drawn from the *archivio* of Cesena, C. GRIGIONI proves that the sculptor of the altar in the cathedral of Cesena, with figures of Saints Christopher, Leonard, and Eustace (no longer in their original position, but



FIGURE 12. — GROUP IN PAINTED WOOD
AT CASCIA.

dispersed about the church), was Lorenzo Bregno. (*L'Arte*, XIII, 1910, pp. 42-48.)

FLORENCE.—**Unedited Drawings in the Uffizi.**—A number of unedited or little-known drawings in the Uffizi are published in *Boll. Arte*, IV, 1910, pp. 147-156, by G. BERNARDINI. They are: a Woman playing the Clavichord by Paolo Caliari; an Anchorite, attributed to Bartolomeo Montagna, but to be assigned to Vincenzo Catena; a St. Sebastian, which should be given to Bartolomeo, instead of Benedetto, Montagna; an Angel by Filippino Lippi; a Last Judgment by Cosimo Rosselli; a Madonna by Sogliani; two sketches by the same artist for his Adoration of the Magi in S. Domenico at Fiesole, the one a general composition, the other a study for one of the kneeling figures; another sketch by Sogliani, representing scenes from the Passion; and a group of soldiers by some imitator of Antonio del Pollaiuolo of the sixteenth century.

GENOA.—**A New Van Dyck.**—In *Rass. d'Arte*, X, 1910, p. 58, F. MALAGUZZI VALERI publishes a Madonna by Van Dyck, which he attributes to the period 1622-29. It is in private possession in Genoa.

MILAN.—**A New Jacopo Bellini.**—A recent acquisition of the Poldi-Pezzoli museum is a Madonna which is evidently one of the few existing paintings of Jacopo Bellini. (G. COGNOLA, *Rass. d'Arte*, X, 1910, pp. 65-66.)

New Drawings in the Ambrosiana.—C. VICENZI publishes in *Rass. d'Arte*, X, 1910, pp. 6-11, a series of drawings recently acquired by the Ambrosiana, evidently copies by some sculptor from reliefs and statues at Rome. One of the drawings, representing the equestrian statue of Marcus Aurelius, shows evidence of having been made anterior to the repairs of 1466. Vicenzi finds it doubtful if the drawings are by Pisanello, to whom they have been assigned.

NAPLES.—**A Fifteenth-century View of Naples.**—A document of first-rate historical and topographical importance is published in *Boll. Arte*, IV, 1910, pp. 125-143, by V. SPINAZZOLA, in the shape of a representation of the naval triumph of Ferrante of Aragon, after his victory over John of Anjou at the battle of Ischia, July 6, 1465. The view represents the city seen from the bay, and is particularly interesting for its careful reproduction of the standards borne by the victorious and conquered ships, and the rendering of the Castello Nuovo and the Castel dell'Ovo. It is possibly by the same unknown artist who painted the Execution of Savonarola, of which copies exist in the Museo di San Marco and the Palazzo Corsini.

NORCIA.—**New Paintings.**—G. SORDINI, in *Boll. Arte*, IV, 1910, pp. 17-28, discusses the mural paintings of a country church near Norcia, called S. Salvatore, dated 1464 and signed with the names of Giovanni Sparapane and his son Antonio. Other pictures in the church bear the dates 1466, 1470, and 1474, but the author was not able to determine whether they are also by these painters. A polyptych in the same church, representing the Virgin and Saints, bears the signature of Antonio Sparapane alone. The article closes with a résumé of the information available upon these Norcian painters.

PAVIA.—**Bramante's Paintings in the Certosa.**—The four groups of saints flanking the apses which terminate the transept of the Certosa of Pavia have long defied certain attribution. G. ZAPPA finds in them unmis-

takable evidence of the authorship of Bramante, to whom he also assigns the major part of the formal decoration of the walls of the transept, dated 1493. If this attribution be accepted, there are added to Bramante's *oeuvre* the only well-preserved and securely dated pictures by him known. (*L'Arte*, XIII, 1910, pp. 161-176.)

ROME. — Recent Discoveries. — Explorations in some of the churches of Rome have led to important results. Under the church of SS. Giovanni e Paolo on the Caelian Hill a painting, representing a mythological scene in a harbor, was found in a nymphaeum. Under S. Crisogono remains of the house of the saint were found, and considerable portions of the earlier church (see *A.J.A.* XIII, p. 111), which was built into it. (*Nation*, April 14, 1910, p. 387.)

S. COLOMBANO AL LAMBRO. — **Works by Amadeo.** — F. MALAGUZZI VALERI publishes in *Rass. d'Arte*, X, 1910, pp. 14-18, a document drawn from the *Archivio Religioso* and dated 1505, which shows that the present aspect of the *Castello* in the village of S. Colombano al Lambro, near Lodi, is due to Giovanni Antonio Amadeo. He inclines also to attribute to the same architect the small octagonal church of S. Rocco in the same village.

VERONA. — **Titian's Portrait of Fracastoro.** — Both Vasari and Ridolfi mention a portrait of Geronimo Fracastoro by Titian. This has been identified by E. SCHAEFFER with the portrait in the Museo Civico at Verona, which Berenson believed was the likeness of King Ferdinand. The identity of the sitter with Fracastoro is established by comparison with other existing portraits of the poet. (*Jb. Preuss. Kunsts.* 1910, pp. 130-138.)

SPAIN

MADRID. — **Spanish Copies of Schongauer.** — H. KEHRER publishes in *Mh. f. Kunstw.* III, 1910, pp. 157-158, three pictures in the Prado, an Annunciation, an Adoration of the Magi, and a Death of Mary, which were clearly done by a Castilian painter after the corresponding prints of Schongauer.

FRANCE

PARIS. — **A Twelfth-century Head of Christ.** — In *Mon. Piot*, XVI, 1909, pp. 137-146 (pl.; 4 figs.), P. VITRY publishes a wooden head of Christ, slightly larger than life size, in the collection of Jacques Doucet. It dates from the twelfth century, and may be compared with the twelfth-century wooden figures of Christ in the Louvre and in the museum at Cluny.

Drawings from the Credo of Joinville. — In *Mon. Piot*, XVI, 1909, pp. 61-69 (4 pls.), H.-F. DELABORDE shows that a series of drawings recently found by Philippe Lauer among the papers of Montfaucon in the Bibliothèque Nationale illustrate the *Credo* of Joinville. They date from the end of the thirteenth century, and were probably designs for a series of mural paintings. The drawings are described by P. LAUER, *ibid.* pp. 70-84.

An Acquisition of the Louvre. — The Louvre has recently acquired from the Gay collection an ivory plaque of the tenth century, representing the Miracle of the Loaves and Fishes, and belonging to the "Trivulzio" series. (J. J. MARQUET DE VASSELLOT, *B. Soc. Ant. Fr.* 1909, pp. 259-261.)

BELGIUM

BRUSSELS. — **Acquisitions of the Museum.** — The museum at Brussels has recently acquired, through the *Société des Amis des Musées*, three pictures of importance: a Temptation of St. Anthony, dated 1511 and signed by its author, Lucas van Leyden; an Adoration of the Magi, by Pieter Breughel the Elder; and an Apollo and Diana, by Lucas Cranach the Elder. All three came from the Fêtes sale. (H. HYMANS, *Chron. Arts*, 1910, p. 107.)

GERMANY

BERLIN. — **A Portrait of Narses of Persia.** — In *Jb. Preuss. Kunsts.* 1910, pp. 73–78, F. SARRE publishes a silver figure of a Persian king in the act of launching a spear, designed as an appliqué ornament. By comparison with other works of Sassanid origin, he arrives at the conclusion that the figure dates from the period of florescence of Sassanid art—the third century—and represents King Narses (294–303 A.D.), the sixth prince of the Sassanid dynasty.

BONN. — **The Gallery.** — By the gift of a large part of the Wesendonck collection, now in Berlin, the city of Bonn becomes the possessor of a rich museum of paintings for which a special building has been built. The number of pictures exhibited (including former possessions) is 320. Nearly all schools are represented. There are works by Italian painters from Lorenzetti to Sassoferrato, by the Spaniards Zurbaran, J. B. del Marzo, and Velasquez, specimens of early German schools, some pictures by Reynolds, Poussin, and Greuze, and a rich series of Flemish and Dutch paintings. (S. R., *R. Arch.* XIV, 1909, p. 469, from *Frankfurter Zeitung*, October 29, 1909.)

BREMEN. — **A Cranach Portrait.** — G. PAULI publishes in *Mh. f. Kunstw.* III, 1910, p. 25, a male portrait by Cranach the Elder, belonging to Herr H. Albers in London, but now lent to the Bremer Kunsthalle. The portrait is a half-length figure of a burgher, in furred cap and cloak, and bears upon its back two sets of arms and the date 1514. The painting upon the back is doubtless by a pupil.

DARMSTADT. — **An Illuminated Manuscript.** — Ms. 69 in the Hofbibliothek at Darmstadt contains thirty-one miniatures of the sixteenth century, which bear unmistakable evidence of common authorship with certain of the illustrations in the Breviarium Grimani in Venice. There is also reason to think that the original possessor of the manuscript was the Archduchess Margaret, daughter of Maximilian I. She is known to have ordered breviaries from a certain Horebout, whose surname at least appears inscribed in cryptic fashion on the mantle of Moses in the "Crossing of the Red Sea." Horebout's daughter Susanna appears to have signed another of the miniatures. The hands of three other artists, unknown as yet, may be detected by differences in style. (C. HABICHT, *Rep. f. K.* 1910, pp. 22–35.)

GIESSEN. — **A Frankish Grave.** — In *Röm.-Germ. Kb.* III, 1910, pp. 4–6, KRAMER reports upon the unearthing of a Frankish grave, which yielded numerous beads of various stones and colored glass, pottery, and other objects.

GREAT BRITAIN

CHESTERFIELD.—**A New Perugino.**—F. M. PERKINS announces the existence in the collection of Sir George Sittwell, of Remshaw Hall, Chesterfield, of a Virgin and Two Saints adoring the Child, by Perugino. This picture was practically unknown. It belongs to a period somewhat later than 1500. (*Rass. d' Arte*, X, 1910, p. 18.)

HAMPTON COURT.—**A Picture by Van Hemessen.**—A St. Jerome in Hampton Court Palace is signed: IOANNES DE HEMESSEN PINGEBAT 1545. The painting came from the collection of Charles I, and seems to be the one formerly in the gallery of the Duke of Mantua and identical with that described in the catalogue of the collection of James II as "No. 822, *St. Jerome sitting with a lion by him*, by Quentin Matsys." (*L. Cust. Burl. Mag.* XVII, 1910, pp. 120-123.)

LONDON.—**The "Grafton Galleries" Exhibition.**—The "Grafton Galleries" loan exhibition brought out a number of little-known pictures, among them an Adoration of the Magi, a tondo by Filippo Lippi, interesting for the evident influence of Masolino; a St. Jerome, signed *Johannes Bellinus*, but evidently by Basaiti; and an Adoration of the Holy Child, by Carpaccio, lent by Lord Berwick. Among the better known pictures were Titian's Portrait of a Man, from the collection of Hon. E. Wood at Temple Newsam; the doubtful Titian in the collection of Sir Hugh Lane (a male portrait); the Giorgionesque Adulteress of Glasgow, and Sebastiano del Piombo's portrait of Cardinal Ferry Carondelet, from the Duke of Grafton's gallery, besides interesting works by Tiepolo, El Greco, the *Maitre des Moulins*, and a *Maries at the Sepulchre*, by Jan Van Eyck. (ROGER FRY, *Rass. d' Arte*, X, 1910, pp. 35-39.)

The Mond Collection.—By the death of Ludwig Mond, the National Gallery becomes the possessor of an important series of paintings which formed part of his collection, among them the following: Two Saints, by Cima da Conegliano; a Madonna, by Giovanni Bellini; a Virgin Enthroned, by Gentile Bellini; a Flora, by Palma; two figures of Apostles, by Crivelli; a Madonna, by Giambono; another, a late work of Titian's, formerly in the Dudley collection; a "Life of S. Zanolis," by Botticelli; the "Hortus conclusus" of Mantegna; heads of angels by Correggio; a Madonna, by Suivi; an Adoration of the Magi, by Dosso; a Madonna and Angels, by Francia; a St. Jerome, by Sodoma; a Crucifixion, by Raphael (the Dudley Raphael); and many other notable pictures, chiefly Italian. (G. C., *Rass. d' Arte*, X, 1910, p. iv.)

Persian Copies after Gentile Bellini.—F. R. MARTIN publishes in *Burl. Mag.* XVII, 1910, pp. 5-7, a number of very interesting miniatures in his collection. The first is a copy by the Persian artist Behzad, who worked in the early sixteenth century, of the miniature portrait by Gentile Bellini, which he published some time ago. The second is a later copy of the same. Another miniature is the portrait of some evidently royal personage, possibly Bayarid or Selim I, or one of the sons of Selim painted by Bellini, for the painting is clearly a copy of a European painting by some artist in Behzad's school. Dr. Martin also reproduces two small drawings of a gazelle and a hare which he attributes to Gentile, and on the basis of the resemblance of the gazelle to that represented in the "Reception of a

Venetian Ambassador at the Court of the Kaliph at Cairo," in the Louvre, he claims the authorship of the latter picture for the *bottega* of Gentile Bellini.

A Medal by Francesco di Giorgio.—G. F. HILL discusses in *Burl. Mag.* XVII, pp. 142-146, a medal in the possession of Mr. Max Rosenheim, which he attributes to Francesco di Giorgio. The obverse displays a highly individualized portrait of Federigo di Urbino, and the reverse a group representing a horseman slaying a lion-like monster. This attribution is of far-reaching importance, inasmuch as the style of the medal is that of other more important and controversial works, such as the relief in the Carmine at Venice, which was originally dedicated by Federigo to the Compagnia della S. Croce at Urbino.

Italian Pictures in the Salting Bequest.—CLAUDE PHILLIPS discusses, in *Burl. Mag.* XVII, 1910, pp. 9-22, the Italian pictures acquired by the National Gallery through the Salting bequest. The most interesting of the series are: a David and Jonathan, by Cima da Conegliano; a Pietà, by Francia; a Narcissus, by Boltraffio; a Virgin and Child, by Fiorenzo di Lorenzo; another by Mainardi; and a male portrait by Alvise Vivarini.

OXFORD.—**New Drawings by Brauneven.**—ROGER FRY publishes in *Burl. Mag.* XVII, 1910, pp. 50-51, a sheet of drawings by André Brauneven, whose sketch-book he recently discovered in the collection of Mr. J. P. Morgan. (See *A.J.A.* XI, 1907, p. 126, and XIII, 1909, p. 534.)

AFRICA

CARTHAGE.—**A New Fragment of the Relief of the Virgin from Damous el-Karita.**—In *B. Soc. Ant. Fr.* 1909, pp. 339-340, A. HÉRON DE VILLEFOSSE announces the discovery by Father Delattre of the head of the second figure behind the Virgin in the relief from the basilica at Damous el-Karita found by him twenty-five years ago.

Byzantine Lead Seals.—In *B. Soc. Ant. Fr.* 1909, pp. 339, 342-343, 387-388, and 392-393, A. HÉRON DE VILLEFOSSE and P. MONCEAUX publish eight Byzantine lead seals recently found at Carthage by Father Delattre.

HENCHIR EL-OGLA.—**A Donatist Church.**—The commandant Guénin has recently discovered at Henchir El-Ogla, near Tebessa, the ruins of a basilica, on the keystone of whose triumphal arch appears the following inscription: *Sanctorum se[des] domu Domi[ni] |* (vines and chrisem) *qui pure peti[t] acipit* (sic). *Sanctorum* does not refer to martyrs, but is the appellation given themselves by the Donatists, to whom this church evidently belonged. *Qui pure peti[t]* is also a Donatist phrase referring to the exclusive purity which they claimed. (P. MONCEAUX, *B. Soc. Ant. Fr.* 1909, pp. 276-277.)

HENCHIR-NAJA.—**Christian Terra-cottas.**—In *B. Arch. C. T.* 1909, pp. xvii-xxi, A. MERLIN describes a series of terra-cotta plaques with reliefs, intended for the revetment of the interior of basilicas of the fifth and sixth centuries, recently discovered by M. DUBIEZ. Sixteen are described, of which the most interesting are those representing Adam and Eve, Daniel, and St. Theodore.

UNITED STATES

BOSTON. — A Rubens Portrait. — The Boston Museum of Fine Arts has on exhibition as a loan a superb double portrait painted by Rubens when his powers had reached their full maturity. The panel was coated with plaster, which the painter made use of to affect the tone of the darks; only the lights were loaded. (*B. Mus. F. A. VIII*, 1910, p. 5; fig.)

AMERICAN ARCHAEOLOGY

GUATEMALA. — Archaeological Discoveries. — In *Z. Ethn.* XLI, 1909, pp. 862-874, E. P. DIESELDORF classifies archaeological finds of his in Alta Verapaz, northern Guatemala, which cast light on the tribal relations of the ancient inhabitants of Yucatan, Guatemala, and Honduras. The vases of the first class — the oldest — have rude faces in relief. In the second group, that of the Lacandon Indians, the face seems to be that of the god of nature. These vases have a hole in the bottom and two holes in the sides. At the end of the year the vases were regarded as dead, and were, therefore, hidden away under rocks and in trees or put away in their chief temple. Group 3, that of the Kekchi Indians, is characterized by larger and hollow idols, representing undoubtedly the sun-god. These finds show striking resemblances to the Dresdensis and Peresianus Maya manuscripts, while those of group 4, the Chol or Acala Indians, resemble the Madrid manuscript. The latter's idols are only half as large as those of the Kekchi and are not so roundly modelled. Many of the figures hold fans and some have animal heads. In these two groups the idols often served as a kind of flute. Group 5, the Pokomchi Indians, is distinguished by enamelled vases as well as by barbed arrow heads. In a sixth class the author places certain objects that seem to have been scattered in various districts by trade.

FIRST PRELIMINARY REPORT ON THE AMERICAN EXCAVATIONS AT SARDES IN ASIA MINOR

It has been proposed that a brief statement of the progress of the work on the American excavations at Sardes be made at the end of each season's campaign, and that this report be published, as early as possible, in the *American Journal of Archaeology*. It will not be possible, in these reports, to make a formal publication of any of the monuments or inscriptions discovered in a season; for the reports can be little more than a résumé of the work done from year to year, and will serve only to give archaeologists who may be interested in archaeological research in Asia Minor a preliminary general view of the progress of the excavations, pending the detailed reports of the work which will appear later. This first preliminary report must, of necessity, be particularly incomplete; for it is impossible to speak definitely of levels or stratifications, or to give them names and dates, until a comparatively large area of each level has been cleared; it is difficult to describe buildings that have been only partly uncovered, and unwise to discuss inscriptions or marbles, or pottery or small bronzes, until there has been ample time to study them, and to compare them with known inscriptions or objects which have been thoroughly studied and the ages of which have been determined. But a brief description of the site and some account of our first season's work may not be out of place in this first report.

Sardes, as has been frequently pointed out by archaeologists during the past fifty years, is a peculiarly favorable site for excavation. The cities of various historical epochs are not superposed one above the other, as is known to have been the case in many important ancient centres of civilization, but are spread out over a large area at the base of the mountain which served as an acropolis for each succeeding era of the city's his-

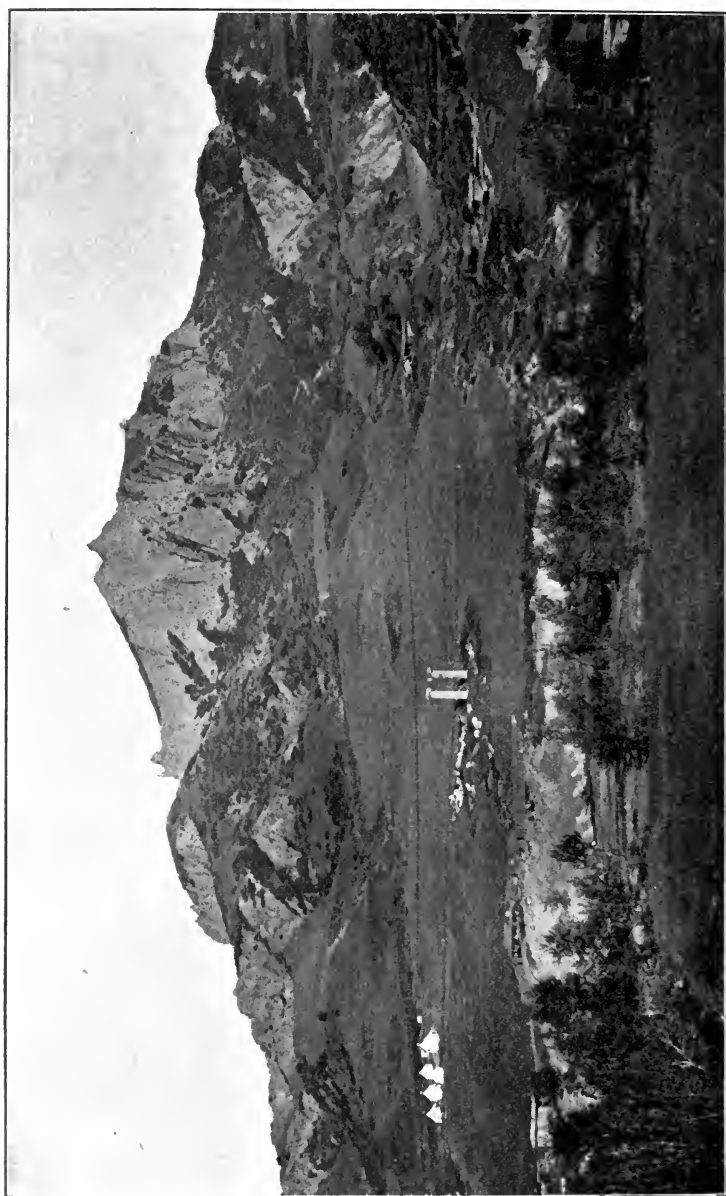


FIGURE 1. — VIEW OF SARDES FROM THE WEST, SHOWING ACROPOLIS, COLUMNS OF TEMPLE, EXCAVATIONS, AND CAMP.

tory. The most ancient of the lower cities was built on the west side of the mountain, between the acropolis and the river Pactolus, and may have spread to the farther bank of the river, unless present signs fail. Here also, apparently, was the Lydian city of historical times, which became a Persian capital and afterwards grew into the Hellenistic city that came under Roman sway in the later centuries preceding the Christian era. Here it is that the two great Ionic columns, never finished, have long marked the site of the earlier town of Sardes (Fig. 1). But this was not the site of the Roman city *par excellence*; for the ruins of a typical city of the empire, consisting of a theatre, a circus, and remains of other large edifices, are to be seen on the north and northeast of the acropolis, separated from the older site by a shoulder of the mountain that extends down to the river. This Roman city seems to have clung to the side of the acropolis, and terrace was built above terrace to elevate the buildings above the plain that stretches out toward the greater river, the Hermus. Still another city, one built in Byzantine times, was placed below the Roman town, and its crudely built walls, its baths and basilica, all containing fragments of Roman architectural details, lie well out in the plain. The reason for the choosing of different locations for three at least of the towns built upon this site may not be far to seek. The geological structure of the acropolis is not rock, but a hard clay-like substance full of gravel and large pebbles; it does not resist erosion well, and the hill that was once crowned by an upper city, as we know from inscriptions, and by a far-famed stronghold, as we learn from history, is now a mere knife-blade, having been washed away into the valleys below. It seems highly probable that the constant descent of débris from the acropolis on its west side, where the effect of the most violent storms is still most disastrously felt, rendered the early site untenable in later centuries, and that the same inconvenience, though felt to a lesser degree on the north, caused the abandonment of the Roman city built on the slopes, and the erection of the Byzantine city out on the plain where the effects of erosion are greatly diminished. It should be possible, in the course of our excavation, to determine whether the original site was gradually abandoned, and was slowly buried by the wash from the hill,

or whether the destruction of the town in the year 17 A.D., which is a matter of history, was really caused by a great landslide on the west side of the acropolis. If such was the case, the city built by the Emperor Tiberius in place of the one destroyed, which is also a matter of history and is further attested by inscriptions, is represented by the ruins of Roman buildings on the north slope of the acropolis, and one may assume that the older city remains substantially as it was buried in the first century of our era. Our excavations thus far have discovered no evidence opposed to this assumption.

The excavations were begun in March and continued into July of the present year, 1910, under my direction. Mr. Charles F. Cook, C.E., was engineer in charge, and Mr. Charles N. Reed, C.E., assistant engineer. Mr. Harold W. Bell went out to take charge of the pottery and small objects discovered, and Professor David M. Robinson came over from the American School of Classical Studies at Athens, for a few weeks, to copy the inscriptions for publication. There being no town near by, nor any habitable houses, the hovels of the peasants being uncomfortable and unsanitary, it was necessary for us to live in tents, which were pitched near the standing columns.

The work of the first season has been, as the work of many seasons to come will probably be, devoted to the unearthing of the old city between the acropolis and the Pactolus. This city on the western slope is deeply buried in soil from six metres deep at the river to probably ten metres deep at the columns, and still deeper toward the acropolis. The long gradual slope of the present surface is cut sharply off at the river side where the water, owing to a change of the stream bed, has undermined the bank of accumulated soil and débris, and has left a perpendicular face which presents a useful cross-section of the stratifications at this point. This cross-section shows, at the bottom, a level bed of hardpan which of course represents the lowest possible stratum of human occupation and which we have called level number one. We began our operations on this level, cutting a face about thirty metres wide in the river bank, directly west of the two standing columns, and digging towards them; but before we had found anything of importance, or even

any indication of archaeological remains, we came upon a pavement and other signs of a stratum of culture at a level of about a metre and a half above the original level, which we called level number two. The face of the cutting was then widened to fifty metres, and excavations were carried along on the new level for twenty metres, or more, towards the columns, disclosing one complete building, parts of another, and two rows of bases which had supported statues and stelae. The building which was completely excavated on this level is, I believe, a structure of great antiquity; it is long and narrow, lying nearly northeast and southwest, and having, along its long west side, a flight of six steps terminating against solid square structures at the corners of the building. The walls of the ends and of the other long side are flat and unbroken, and are preserved, in places, to a height of a metre above the pavement of the interior. These walls above the pavement are nearly a metre thick and probably were much higher than they are at present. There is evidence to show that a row of columns stood at the top of the flight of steps. The building thus had the form of a much elevated stoa. The whole structure was built of unevenly shaped blocks of a friable sandstone, which appears in a quarry further down the stream and is the only material resembling stone in the immediate vicinity of Sardes. This material, which is hardly fit for building purposes and can be crushed between finger and thumb, was laid in clay, but the outer surfaces were covered with two coats of fine stucco very similar to that seen in buildings of the Mycenaean epoch, so hard and so durable that it has preserved the very perishable wall behind it. No imported stone was used in the whole structure, except for the pavement, where a porous limestone was used, and for the bottom step of marble, which was carried under the face of the parotid walls. This step, however, may have been inserted long after the erection of the building. A fragment of a Persian tile of a beautiful blue, like that of the tiles from Susa, was found in a corner of the building, lying flat upon the pavement.

To the north and south of this building are rows of bases, or pedestals, consisting of a larger and a smaller block of well-dressed marble, the smaller block, which is naturally the upper,

having in every case a sinking, or mortise, carefully cut to receive the tenon at the bottom of a statue or a stele; in some cases the tenon is still in place, well leaded in, but all the statues and stelae have disappeared. There are bases of this kind in front of the parotids of the long building. Only two or three of these bases, curiously enough, are set upon the pavement which can be traced on the south and west of the building; most of them stand on hard-packed earth, from thirty to fifty centimetres above that level. In several instances the pavement extends under the earth beneath a pedestal, and the rough unfinished surface of the lower part of the sides of the pedestals shows that they were to be sunk in the earth; so that the distance from the old pavement to the original level about the pedestals is from fifty to seventy-five centimetres. The pavement, then, and the old building, which was certainly coeval with it, are older than the pedestals, or older than most of them, the pavement having been buried for some time when the pedestals were set up. Most of the pedestals are perfectly plain, such as might have been used in any historical period; but their very plainness argues for an early, rather than a late, date; two have mouldings of profiles which I believe to be early, at least as early as the fifth century B.C., a third may be of the fourth century. None of these pedestals bears an inscription; but a cylindrical pedestal for a statue was found, not *in situ*, near the steps of the long building and on the level of the third step from the top, with a long inscription which may be as late as the first century after Christ.

As excavations proceeded on the level which I have been describing, we came upon a solid structure, about three metres square, composed of large blocks of white marble carefully fitted together but with unfinished surfaces, standing to the south of the oblong building, and, a little later, a similar structure directly east of the first, and then a row of three huge masses of marble extending northward from the second, behind the oblong building, absolutely parallel with it, and about four metres east of it (Fig. 2). It was evident that these structures were foundation piers; for they were not intended to be seen, and several of them had been partly encased in rubble masonry which had been rudely dumped into trenches which

were dug about them some time after they had been constructed. It occurred to me at once that these were probably the foundations of columns, as the spacing suggested that probability; but the distance to the two standing columns was so great that it did not at first occur to me that there could be any connection between them and our pedestals; but, as more piers were excavated on the south side, extending toward the columns, the spacing, the bearing, and the alignment of our piers made it more and more evident that there must be some connection



FIGURE 2.—THE EXCAVATIONS FROM THE SOUTH. MARBLE FOUNDATION PIERS.

between the two, and it was presently proved beyond a doubt that we were working in the west porch of the temple whose east porch is marked by the columns standing a hundred metres away. We continued to work on the old level as long, and at as many points, as possible, on the chance of finding remains of an older temple among the substructures of the later one; but when the foundations of the west wall of the cella were reached, we were obliged to abandon the older level and to come up about three metres to a new level which soon proved to be the pavement level of the porch and cella of the great temple. As the soil above the new level became deeper, we found more

and more of the building preserved, and, toward the end of the campaign, came upon a portion of the north wall of the opisthodomos preserved to a height of over two metres above the interior pavement. This wall, which is of unusual thickness, has a heavy moulding on its exterior and interior faces, is exquisitely joined and highly finished, and bears upon its inner face a long Greek inscription the date of which may be placed in the fourth or the third century B.C. The inscription, moreover, definitely proves that the temple was sacred to Artemis, bearing out the theory advanced by M. Georges Radet in his *Cybélé*. Fortunately it answers two of the most important questions regarding the temple, giving a *terminus ad quem* for the date of the temple, and naming Artemis as its goddess.

The excavations, which had begun at a width of fifty metres, were continued until the end of the season at the same width, reaching a distance of seventy-five metres on either side; but the face of the cutting was not parallel to the line of the west end of the temple, and, as the temple is more than fifty metres wide, we did not uncover its entire width. At the end of the season we had unearthed seven piers, or foundations for columns, on the south flank of the temple and a short section of steps on that side, we had discovered, or accounted for, six columns of the west porch and two of the inner row at the west end, the entire width of the west end of the cella with one course above the pavement *in situ*, a part of the north wall of the cella (that is, of the opisthodomos) with three courses and an inscription *in situ*, two piers for interior columns in the opisthodomos, and a fine flight of steps on the north side of the west porch (Fig. 3) within the outer row of columns. Since we have disclosed the width of the cella, and several of the piers of the columns of the south flank, it is evident that the temple was octastyle, though the seventh and eighth columns at the north end of the west porch are still to be excavated. It is further evident that the plan was one that is often called *pseudo-dipteral*, the space between the side columns and the cella wall being wide enough for a second row of columns. The exact number of columns on the sides is as yet unknown; but since the distance from the southwest pier to the southeast column measures ninety-five metres on centres,

it would seem that there must have been twenty or more ; but it is unwise to count your columns before they are excavated.

The complete destruction of this end of the temple, and the disappearance of all details of architecture and sculpture, may be explained only by the fact, quite capable of proof, that this end of the building bordering upon the river was not deeply buried in Roman and Byzantine times, and by assuming that the ruins of the temple, exposed during the centuries when

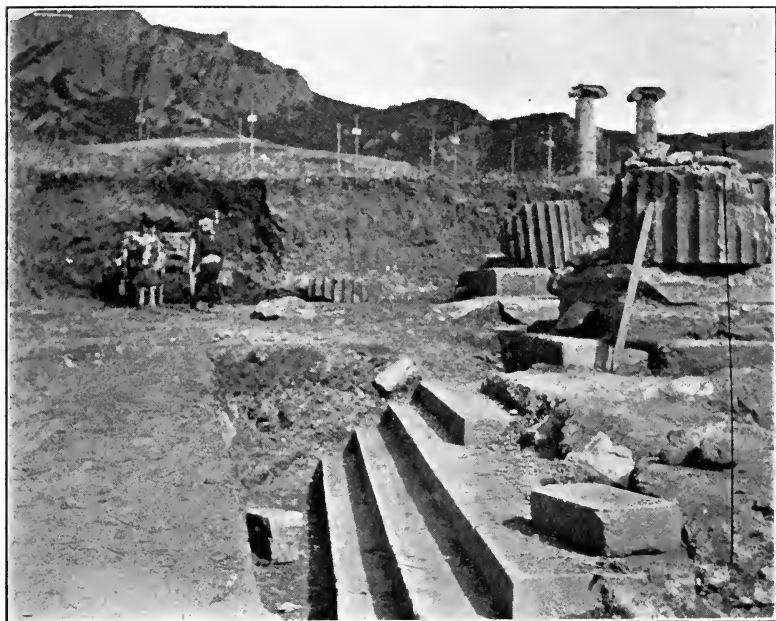


FIGURE 3.—VIEW FROM THE WEST. STEPS AND INNER ROW OF BASES.

Roman and Byzantine Sardes were building, were used as quarries and lime kilns. Layers of chipped marble on levels above the temple pavement give good evidence of this, and the presence of three different lime kilns, not far below the surface, adds further proof. Two of the piers of the west porch — the second and the sixth from the south end — were excavated in ancient times for the marble in them, to their lowest foundations, the sixth having been dug out of its concrete casing which still remains. The southwest angle suffered most severely at the hands of the quarry-men or the lime makers, for here the

piers are only a metre high, while further east and north some of the piers are from two to three metres high, and two of them have the moulded plinths of their column bases still in place ; the bases proper, with richly wrought torus mouldings, finely carved reeds and deep scotias, were represented only in fragments prepared for the lime kiln.

It is quite plain that the ancient despoilers of the ruins had no notion of the plan of the building they were breaking up, for when they had discovered a mass of marble, representing one pier that was for some reason more exposed than the others, they dug it out entirely, ignoring the existence of the buried piers on either side of it. It is equally evident that two or three columns at the northwest angle remained standing while the despoliation of the ruin was in progress, for broken capitals and fluted drums were found at a high level, resting on soil that had been cultivated, and barely covered by the present level of cultivation. During this period, either Roman or Byzantine, the chamber at the west end of the temple was converted into a reservoir ; the débris inside the chamber was levelled down and filled in with broken stone, and then covered with a pavement of pink cement, *opus signinum*, at a level a metre or more above the original pavement of the chamber. The massive walls were coated with cement and formed the sides of a reservoir probably two or three metres deep ; the water was carried away to the north by a great number of tile pipes which we found in large quantities in our excavation, the trenches for which followed tortuous courses among the ruins and ancient foundations which had long been buried when the pipes were being laid. In the latest period of quarrying and lime making the reservoir must have been abandoned ; for its west wall was broken up and carried away.

The dates of the earlier periods of marble-breaking, and of the reservoir, are approximately determinable from coins of the fourth and fifth centuries A.D. found on these levels ; while the higher levels furnish coins of the later Byzantine centuries and the first century of the Moslem era. The coins, as might have been expected, have been of great assistance in determining the approximate age of the various levels. Almost all of the coins discovered thus far are of bronze. The earlier ones are badly

corroded; but those that have been cleaned thus far have shown that the débris between the second level from the bottom and the level of the temple pavement contains only coins of the second, third, and fourth centuries B.C., while the soil above the temple pavement furnishes only coins which date from the third century to the ninth century A.D. Up to the present time no coins of the Roman Empire earlier than the third century have been found in the excavations, though many Roman coins of the first and second centuries A.D. have been brought to me by peasants who found them while ploughing fields on the other side of the acropolis.

At the close of the season, early in July, we had reached a point in the excavations where the operations of the stone breakers and lime makers had practically ceased, and where the greater depth of the soil above the temple platform had preserved more perfectly all the details of the building. The walls of the cella were found to be intact to a height of from two to three metres, and a beautifully carved Ionic capital, and other details, were found almost intact. One would hardly look for statues in an opisthodomos that had been converted into a reservoir, yet one of the three broken statues which we found was a specimen of later work, probably Roman, which had been used in the filling underneath the cement pavement of the reservoir. The other two, one late Greek and one later Roman and unfinished, were found in a filling just west of the west wall.

In addition to the important inscription found in the temple, and the other inscriptions of greater or less historical value discovered in the excavations, all of which were copied by Dr. Robinson, almost all of the known inscriptions in the walls of the acropolis were recopied with the aid of a ladder, and squeezes were made from a number which formerly had been studied only from the ground by means of a field glass (Fig. 4). One long inscription, almost intact, and hitherto unknown, was taken out of the acropolis wall; while a large number of small inscriptions and fragments of longer ones were collected by Dr. Robinson and M. de Vidas, the Imperial Commissioner, and brought to the camp for preservation in the depot for antiquities which we have now completed; many of these were

unknown. In the same manner a small collection of torsos, less than life size, and of sculptured architectural details, was secured from the peasants, and is now in the depot of the excavations.

During the rainy days of May, a number of tombs which had been discovered in the mountain side across the river, facing the excavations, were opened and examined under the supervision of Mr. Bell. The steep faces of the mountain are honeycombed with these tombs which have been filled with



FIGURE 4.—PART OF THE WALL OF THE ACROPOLIS.

soil by wind and rain, and are not noticeable to the casual observer. Those which were opened proved to be part of an ancient Lydian necropolis. Each tomb consists of a passage, or *dromos*, closed by a door composed of one large stone, or by a number of small flat stones. One of these bore three complete inscriptions in the script, as yet undeciphered, which has been called Lydian, all the examples of it found hitherto having come from ancient Lydia, though not, so far as I know, from Sardes. The *dromos* of each tomb, long and narrow, but high enough to stand up in, leads to a chamber, hewn out of the hard clay of the mountain, with pointed, double-

pitched roof and double couches, also hewn in the clay, on either hand and at the end of the chamber opposite the entrance. In one tomb, in place of the third couch, was a staircase descending to another passage which terminated in a lower chamber similar to the upper. Most of the tombs which we opened had been rifled, probably by Greeks or Romans, at a very early date; for many centuries would be required for the accumulation of the finely pulverized soil which now completely fills them. A majority of the tombs, however, contained pottery, beautiful in form and good in quality, but entirely without painted ornament. The vases suggest no Greek forms, and show no Hellenic influence. With the vases in some of the tombs were found small bronze objects, such as flat mirrors, well made but without ornament, rings, and other objects, and, in one, a ring with an Egyptian scarab. Alabaster of Egyptian form were found in more than one tomb. It is plain that inhumation was practised here, that is, that unburned bodies were laid upon the couches, but the discovery of a large vase full of charred human bones, and of fragments of similar vases, shows that cremation was also practised. It is as yet impossible to know if the charred bones are the remains of funeral sacrifice; for many more tombs must be opened before trustworthy deductions can be drawn from them.

In one of the tombs which have certainly not been rifled three gold necklaces were discovered. The gold work is of exceptionally fine quality, one necklace having been made up of delicate flower-like units, and another representing pepper-corns with berry, flower, and stem. One tomb contained a sarcophagus of terra-cotta, well made but without ornament; the sarcophagus was sunk in a grave in the top of a couch, but its lid was not buried. The contents of all the tombs that have been opened appear to belong to a period considerably earlier than that of any of the objects or buildings unearthed in the excavations.

A brief report on the Greek and Latin inscriptions, by Professor Robinson, follows, and one on the Lydian inscriptions, by Professor Littmann, of Strassburg, will be published in the next issue of this *Journal*.

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September, 1910.

GREEK AND LATIN INSCRIPTIONS AT SARDES

IN preparation for the publication of all inscriptions from Sardes, including those unearthed in the excavations, the surrounding country was explored. Although Von Premenstein and Keil had recently traversed this section of Lydia, several unpublished stones, mostly of Roman date, were discovered. These (with the exception of a second-century inscription from a Heroum, found about seven hours northwest of Sardes, published in the *American Journal of Philology*, XXXI, p. 402 f.), as well as some already known, about fifteen in all, were brought to the museum at Sardes. Among those unpublished, the most important is the seventh Roman milestone which stood on the road from Sardes to Pergamum, found north of the Hermus near Kesterli, which is just about seven miles from Sardes. The Greek inscription in eleven lines contains the names of Diocletian and M. Aur. Val. Maximianus as Augusti and Fl. Val. Constantius and Gal. Val. Maximianus as Caesares (between March 1, 292, and May 1, 305 A.D.). Those already known are accurately published in most cases, but that in the *Sitzb. der Akad. zu Berlin*, 1889, p. 371, is not nearly as complete as the copy of Cichorius. In that published in *R. Arch.* 1875, p. 54, and *Ath. Mitt.* XXV, p. 121, line 1, 'Ιούλιον Λέπιδον[ν] should be read for οἰλιονα ἐπιδ, and in the last line, τ]οῦ κοινοῦ το[ῦ] for μίου το[ῦ].

The inscriptions built into the walls of the acropolis were also carefully examined and copies and squeezes made of all except three. These are inaccessible, but were read with much difficulty by means of telescopes and powerful magnifying glasses. In this way better readings were obtained for Le Bas-Waddington, Nos. 621, 629, and *C.I.L.* III, 409. For example, in the second of these, a late Greek epigram (cf. also

Kaibel, No. 903), in line 2 should be read *δόγμασιν*, and not *λούμασιν* or *δούμασιν*, and in lines 3, 4, *εἰκόνα [ῆ]βαίην στησαμένη εὐνομίας μάρτυρα πιστοτάτην*, not *εἰκόνα χαλκὴν στησαμένην* *ᾧ* *πασε* *θειοτάτην*. The epigram is probably by the same man who wrote other "high-falutin" lines for Hypaipa (cf. Kaibel, Add. 903 a) and several epigrams at Ephesus, which will be published by Keil. One new long Greek inscription of Roman date was removed from the south wall, after four days' work with two men, and is now in the museum. This is an inscription of the *σύνοδος* of *Technitae* of Dionysus, mentioning the dedication of games at the hospitable and eldest city of Sardes, and is somewhat similar to inscriptions from Teos and Lebedos.

In the excavations themselves it is not surprising that only some eight inscriptions, all Greek, were found, if we consider the fact that the campaign could not yet be extended to the precinct outside the temple, where many inscriptions will undoubtedly come to light. However, some of these are of great worth. One is on a large marble ball with laurel wreath carved in low relief, such as are common in Hellenistic times, and is inscribed *Στρατονίκης τῆς Δ[ημ]ητρίου*. This is, in all probability, Stratonice, daughter of Demetrius Poliorcetes who captured Sardes in 287 B.C., who was married by Seleucus who obtained possession of Sardes in 281 B.C. In another inscription of Hellenistic date is an interesting list of names of the family of Ephesus the cook. His sister, Seddis, was a *Kitharistria* and his wife had the peculiar name Ninis. His son was Attalus and his daughter had the significant name Artemis. A large cylindrical base, 1 m. high, with a perfectly preserved inscription of the first century A.D., honors, in twenty-two lines, Iollas, son of Iollas, with many crowns and gilded, marble, bronze, and painted statues, giving a long list of his good deeds and the offices he had held. It is also of orthographical interest because of such words as *θύας* for *θυσίας*, *έαυτοῦ* for *έαντοῦ*, *καθαρήως* for *καθαρώς*, etc. A Greek Heroum inscription of the second or third century A.D. records that the Heroum belonged to Aurelia Hesychius Menophilus and Aurelius Isoticus, who was *ἀρτοπώλης πολειτικός*. But the most valuable is an exceptionally interesting and most informing

inscription *in situ* on the cella wall of the temple. It is one of the best and most important inscriptions found in Asia Minor in recent years. It has been chiselled off at the top, but eighteen long lines of two columns remain, giving a list of tributes paid to the sanctuary of Artemis from cities with such Persian-sounding names as Periasasostra, Tobalmoura, Kombdiliaphoros, Kinaroa, etc. The inscription is of Hellenistic date; it throws much light on the administration of the funds and properties belonging to the temple, and settles the question as to its name. The so-called temple of Cybele becomes a temple of Artemis, who is, after all, only another form of Cybele.

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EXPERIMENTS WITH MYCENAEAN GLAZE

IN a previous article in this JOURNAL¹ I asserted the belief that the black glaze employed in the black-figured and red-figured Attic styles of vase-painting is composed of a white clay colored by ferrous iron and rendered fusible by the admixture of some alkali. This belief arose from observing that, barring an excess of alkali in the glaze, the elements composing the clay of the vases are the same as those entering into the makeup of the glaze. The iron present predominated as ferric (red) oxide in the clay and as ferrous (black) oxide in the glaze.

If now in the black-figured and red-figured styles the glaze in its component parts proved to be the same as the clay with the exception that black oxide of iron predominated in the glaze and the red oxide in the clay, then in the Mycenaean style employing the red glaze analyses should show the red oxide to be present in larger amounts in the glaze than in the clay, for in this ware the glaze is distinctly redder than the clay. In other words, if the Greeks employed compounds of iron in the ferrous condition in combination with white clay to produce the black glaze, it is reasonable to assume that they used compounds of the same element in the ferric state to obtain the red glaze of the Mycenaean style.

But it will be remembered, from my previous article, that the employment of white clay was necessitated, in the production of the black glaze, by the fact that in ordinary clay the presence of the red oxide neutralized the effect of the black, so that the results were always unsatisfactory. In the case of the red glaze, however, the presence of the red oxide of iron in the clay should be just what is desired, for it would apparently obviate the artificial introduction of the red. Yet before

¹ Vol. XII, 1908, No. 4, pp. 417 ff.

it was possible legitimately to proceed to attempt the reproduction of the red glaze by reversing, as it were, the process employed in connection with the black, it was obligatory to discover by analysis if it were true that the Mycenaean glaze showed an excess of red oxide over the clay.

To determine this the following experiments¹ were performed by my colleague Professor William Foster of the Department of Chemistry in Princeton University.

A glaze-coated fragment of Mycenaean ware was placed in a platinum crucible, covered with a mixture of hydrofluoric and sulphuric acids and, with the exercise of great care to exclude all air so as to prevent the oxidation of the ferrous iron, heated until all the glaze was removed from the body of the clay. The amount of ferrous iron in solution was determined by means of standard potassium permanganate, and the amount, calculated as FeO, was found to be 0.44 %. Analysis of an equal weight of the body of the vase, without the glaze, showed 0.56 % of FeO present in the clay. The analysis of a fragment from a second vase showed 0.35 % and 0.43 % of FeO present in the glaze and the body respectively; while in a fragment from still another vase 0.17 % and 0.25 % of FeO were found.

These experiments, therefore, indicate that the body of the Mycenaean ware contains more ferrous iron than the glaze. This, it will be remembered, is the reverse of what was found to be the case in reference to the black glaze.²

The next step was to determine the total iron, as ferric oxide (Fe_2O_3) in the red glaze and in the body of the clay.

To do this as much red glaze as possible was scratched from a fragment of Mycenaean ware by means of a diamond point, and 0.5 g. of the fine powder was dissolved in a platinum crucible, as previously, by means of a mixture of sulphuric and hydrofluoric acids. All the iron thus being in solution, the ferric iron was next reduced to the ferrous condition with the zinc-platinum couple, and the total iron then titrated by means

¹ These are the first experiments, so far as I know, that have been performed upon Mycenaean clays and glazes. Some of the specimens employed I picked up at Mycenae, the others I selected in Athens from the results of the excavations at the Heraeum.

² Cf. Tonks, *A. J. A.*, 1908, p. 423.

of standard potassium permanganate solution. The total iron present as Fe_2O_3 (ferric, or red, oxide) was thus found to be 8.16 %. This gave the ferric iron present in the glaze. To determine the amount of this material in the body of the clay a similar sample of the body of the vase was treated in a like manner as the glaze, with the result that 7.36 % total iron (as ferric iron) was found to be present. After making allowances for the small amount of ferrous iron present in the clay (see above) *the glaze was found to contain considerably more ferric iron than the body of the vase.* A second experiment conducted upon a fragment of another vase confirmed this most conclusively.

This being settled, it now seemed possible to reproduce the Mycenaean red glaze in much the same fashion that the black glaze of the Attic styles had been reproduced; and since Foster's results were more or less the converse of those obtained from analyzing the black glaze, it was natural to attempt to reverse the processes which had been followed in making the black glaze. Where, therefore, ferrous, or black, oxide had been previously used I now undertook to substitute ferric, or red, oxide. In other respects the earlier experiments were followed. In those it had been found that pipe clay could be fused by adding nitrate of soda. So now pipe clay and soda were fritted together and mixed with red oxide of iron. So far as concerned the glazing, I experienced as much success as when reproducing the black glaze; but in every instance the glaze which entered the furnace a good red came out a black of more or less intensity according to the amount of ferric oxide introduced. It required about a score of trials to convince me that this change was not due to some accident; for in some instances air was allowed to enter the muffle, while in others it was carefully excluded. But either way the glaze was always black. Indeed, no other result could be expected, for ferric oxide, when heated, turns from red to black. This was known to Foster with whom I was working; but he had thought that possibly the oxide might act differently when placed in contact with the ingredients in the glaze and in the clay. These trials, however, showed that this view was erroneous.

The answer then to these experiments would seem to be that ferric oxide could not be the coloring substance. But this view assumes, as I did, that the red oxide of iron went into the glaze in the identical form in which the experiments showed it to be present. This of course need not be the case. The iron, in fact, might be in the glaze in an hydrated form, which, when heated, changes to that in which the analyses found it. This is what occurs in the process of baking the ordinary red brick; before entering the kiln the clay is, or at least may be, yellow in color, but when fired it changes from yellow to red as the water is driven off.

If such clay as is used in making these bricks turns red in baking, there could be no reason, so far as could be seen, why it should not do the same when producing a glaze. If, moreover, the red-burning clay could be so employed it would obviate the need of introducing coloring matter artificially and would as a result simplify the process and tend to support the postulate I had laid down in reference to the black glaze on Greek vases, namely, that the glaze is nothing but a clay made fusible by the addition of some alkali and colored by the proper material.

To discover therefore if a red-burning clay could be used in reproducing Mycenaean glaze, I obtained from Trenton, N.J., some yellow clay which turns red upon baking. This was mixed with nitrate of soda, applied to the surface of a piece of clay, and when it came out from the furnace it was red in color. The tone, however, was too dark. It required in fact some fifty trials to find that this Trenton clay when mixed in the proportions of three to one with pipe clay and then fritted together with nitrate of soda in the proportions of one part of the mixture to eight parts of soda gave the same red tone as was to be seen on a specimen of Mycenaean ware in my possession. It was also found that it was necessary to apply the glaze very thinly to obtain the desired results. An electric thermocouple showed that the temperature in the muffle furnace in which the baking was done was 980-990° centigrade.

Finally, to convince myself that the Mycenaean clay itself was capable of being fused into a glaze, I mixed one half a gram of Mycenaean clay, which had been reduced to a powder, with two grams of nitrate of soda and subjected it to the heat of the

furnace. The result was a coarsely fused, somewhat darkish, red glaze which, although imperfect, was good enough to lead one to believe that the fresh clay, which had never been baked, when properly combined with nitrate of soda or some other alkali, would produce the glaze of the ancients.

In reference to the reproduction of the glaze with other clays than the Mycenaean it goes without saying that the proportions of clay and alkali would necessarily vary according to the kind of clay employed. The proportions given in this paper therefore are not constant.

The following is, so far as I know, the first analysis that has been made of Mycenaean clays. The work was done by Foster.

Silica (SiO_2)	40.60%
Aluminium Oxide (Al_2O_3)	17.07
Ferric Oxide (Fe_2O_3)	6.93
Ferrous Oxide (FeO)	0.56
Calcium Oxide (CaO)	19.80
Magnesium Oxide (MgO)	4.42
Potassium Oxide (K_2O)	2.96
Sodium Oxide (Na_2O)	0.21
Carbon Dioxide (CO_2)	5.40
Water (H_2O)	2.95
Total	100.90

A partial analysis of another specimen by the same chemist gave the following results:

Silica	47.51%
Aluminium Oxide	20.40
Total (Fe_2O_3) Iron	8.89
Calcium Oxide	13.82
Magnesium Oxide	4.41
Loss by Ignition (H_2O and CO_2)	2.78
Total	97.81

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A PANATHENAIC AMPHORA WITH THE ARCHON'S NAME ASTEIUS

It was my good fortune last June to be the first to see in the hands of Athenian dealers in antiquities a new Panathenaic vase which had recently been found in many fragments in a grave southeast of the Philopappus Hill. It is of importance because only one other complete dated Panathenaic amphora and three small fragments, two of them having the same archon's name, are known definitely to come from Athens.¹

The vase has been repaired, and although it is in bad condition, the essential features have been recovered. It is 0.58 m. in height, and its greatest circumference is 1.01 m. Its shape is midway between the squatty low-necked early Panathenaic amphoras and the later long-necked and very slender specimens. It is similar to one in London pictured by Brauchitsch, *Die Panathenäischen Preisamphoren*, Tafel No. 6, and described p. 45, No. 76. It belongs to the class which Brauchitsch, p. 44, calls "Serie I (378 bis ca. 370), Jüngere Reihe der Panathenäischen Amphoren," but as it is dated, Brauchitsch's caption, p. 51 (Beginn der Datierung durch Archontennamen), must be transferred from his Serie II to Serie I. The parts between the two panels and below, including base and foot, the handles, and rim are covered with a black glaze. On the neck on both sides is a long tongue pattern, and above, where the handles join, a palmette chain.

¹ Cf. Robinson, *A.J.A.* XII, 1908, pp. 47, 48 (where the literature on Panathenaic vases is cited). The fragment there published, whose greatest height is 0.10 m., and whose greatest breadth is 0.07 m., now lacks the bit of Athena's shield which was formerly visible. A closer examination of the fragment, which is now in Baltimore, than I was able to make before, reveals part of Ν (V) above ΝΕΑΙΧΜΟ (written *κιονηδόν*), so that we must restore *ἄρχων Νεαίχμος* (320–19 B.C.), although in the years just preceding, 324–3, 323–2, 321–0, *ἄρχων* follows the name. Brauchitsch, *Die Panathenäischen Preisamphoren* (Teubner, 1910), does not cite this fragment.

The reverse, which is in a very damaged state, shows to the left a slender column whose capital is missing. To the right is the *brabeus*, of whom only the head and shoulders and part of the legs are preserved. He is bearded and wears a wreath on his head. He was clad in a himation, which can still be seen on his left shoulder, and which left his torso somewhat bare. He faces to the left toward the two nude wrestlers who, with right foot advanced, are bending forward, and probably seizing one another by the wrist. The heads and arms and upper part of the bodies and considerable portions of the legs are missing, so that we do not know exactly what hold they had, but the moment represented is one of those discussed by Gardiner, *J.H.S.* XXV, 1905, pp. 266-278. The nearest parallel is found on coins of Aspendus (*l.c.* p. 271, 9 c). There is no *ephedros* as is the case on other Panathenaic vases with a wrestling scene.¹

The obverse has the usual figure of Athena Promachos. The goddess advances to left, her left foot planted solidly on the ground, her right touching the ground only with the toes. She is clothed in a long Ionic chiton with overfold reaching below the hips. The end of this and the lower edge of the chiton itself are decorated with white spots over the black. These are found also on the aegis with the fringe of snakes. Athena's raised right arm grasps the spear, and her left holds the large round shield, which lacks the usual emblazonry (cf. Brauchitsch, *op. cit.* pp. 115 f.). On her head she wears the Attic helmet with tall crest, which projects high up into the tongue pattern. Her position is similar to that of the Athena in Brauchitsch's No. 76, except that in our vase the chiton follows the outline of the right leg more closely. White is used for all flesh parts, face, right arm, feet, and also for the incised lines which mark all the details in chiton, aegis, and helmet.

On either side of the goddess is a slender column,² as is

¹ Cf. Brauchitsch, *op. cit.* p. 146, "Brabeus sowohl wie Ephedros fehlen auf keinem der Bilder mit Ringkampf." But on this new vase and others, such as No. 451 in Athens and one in the British Museum, where the same sort of a wrestling scene is pictured, the *ephedros* is lacking.

² It is difficult to agree with Miss Bennett, *A.J.A.* XIII, 1909, p. 439, that these columns have cult significance, and are a survival of an aniconic image. Columns occur also on other kinds of vases with athletic scenes to typify the

usually the case. The capitals are not preserved, but they were undoubtedly of the Doric order and took one of the forms mentioned by Brauchitsch, *op. cit.* pp. 104 f. On top of each column was a figure of Winged Victory facing toward Athena, well preserved on that to the right but almost entirely gone on that to the left. The Victory to the right holds in her raised right hand a branch of olive, and in her left what appears to be a cornucopia (cf. Brauchitsch, pp. 110, 111). To the right of the left column, as in all the earlier Panathenaic vases, is the official inscription, designating the amphora as a prize of the games, arranged *stoichedon* with the bottom of the letters toward the column Τ]ΟΝΑΘΕΝΕΘΕΝΑΘΑΟΝ. Although the Ionic alphabet was officially introduced in Attica in 403 B.C., it was not used regularly on Panathenaic vases till 333 B.C. (cf. Brauchitsch, p. 122), and yet with the Attic short vowels we have here the Ionic lambda as in Brauchitsch's Nos. 84, 86, 95, *op. cit.*¹ Until 336 B.C. the two inscriptions with one exception (cf. Brauchitsch, p. 123) are on the inside of the columns. So here to the left of the right-hand column is the inscription ΕΠΙΑΞΤΕΙΟΑΡΧΟΝΤΟΣ, arranged *stoichedon* with the letters facing the same way as in the other inscription, i.e. with the bottom away from the column. This inscription is of great interest, because it gives an archon's name earlier than any hitherto known to occur on Panathenaic vases, and because the formula is different. Asteius was archon in 373-2 B.C., and the first archon in previous lists of dated Panathenaic vases is Polyzelus, 367-6 B.C. (cf. *A.J.A.* XII, 1908, p. 48). The usual formula is ὁ δαίνα ἡρξε, which occurs only in the earlier vases of the fourth century B.C.,² or ὁ δαίνα ἄρχων, or ἄρχων ὁ δαίνα, but here is the first occurrence of the formula ἐπὶ τοῦ δεινὸς ἄρχοντος, which is so frequent in inscriptions on stone. We

palaestra or gymnasium. The emblems found on the columns are well collected and discussed by Brauchitsch, *op. cit.* pp. 104-115.

¹ For the amphora published by Hoppin, *A.J.A.* X, 1906, pp. 385 f., Brauchitsch, *op. cit.* p. 58, No. 92, gives the form Λ, but it is an Attic λ.

² Cf. Brauchitsch, *op. cit.* Nos. 83, 92, 96, fr. 113. P. 124 he says that in two instances (Nos. 120, 121) in place of the archon's name are found the names of other magistrates, *agonothetes* and *kosmetes*, but Wilhelm (*Beiträge zur Inschriftenkunde*, p. 82) has proved that in No. 121 we should read ταμ[ιεύοντος and not κοσμη[τεύοντος].

now know of twenty-four amphorae or fragments with sixteen archons' names, and in six cases the name of the same archon on two vases, and in one the name of the same archon on three vases. Only in the cases of Theophrastus and Pythodelus do the vases with the same archon's names not come from the same site. Since all previous lists are very incomplete and Brauchitsch gives none, I append one brought down to date, giving in parentheses Brauchitsch's numbers.¹

¹ In the museum at Eleusis there is an unpublished fragment of a Panathenaic vase with the letters ΙΜΟ. This is either part of Τιμοκράτης (364-3 B.C.) or Σιμωνίδης (311-10 B.C.). Since the Ionic alphabet regularly occurs after 333 B.C., only the first seems possible. Also in Eleusis is a vase, not a mere fragment, as Brauchitsch, p. 56, says, with the name Charicleides, which will be published with the other Panathenaic vases at Eleusis by Pringsheim. For Aristodemus, Brauchitsch, p. 56, should refer to *Cl. R.* XIV, p. 474 f., and p. 65, read *Brit. Mus.* B. 611 for B. 605. For Theophrastus the arguments of Brauchitsch, p. 60, for the date 340-39 seem conclusive.

	ARCHON	DATE	PROVENIENCE	PRESENT LOCATION
1.	Asteius	373-2 B.C.	Athens	Athens
2 (84).	Polyzelus	367-6 B.C.	Teucheira	Brit. Mus. B. 603
3 (85).	Polyzelus	367-6 B.C.	Benghazi	Brussels
4.	Timocrates	364-3 B.C.	Eleusis (fragment)	Eleusis
5 (87).	Charicleides	363-2 B.C.	Eleusis	Eleusis
6 (89).	Aristodemus	352-1 B.C.	unknown (fragment)	Chicago (Tarbell)
7 (90).	Themistocles	347-6 B.C.	Athens (fragment)	Athens
8 (91).	Themistocles	347-6 B.C.	Athens (fragment)	Athens
9 (92).	Theophrastus	340-39 B.C.	Capua	Boston
10 (93).	Theophrastus	340-39 B.C.	Benghazi	Louvre
11 (95).	Pythodelus	336-5 B.C.	Caere	Brit. Mus. B. 607
12 (96).	Pythodelus	336-5 B.C.	Caere	Brit. Mus. B. 608
13 (97).	Pythodelus	336-5 B.C.	Athens	Munich
14 (99).	Nicocrates	333-2 B.C.	Benghazi	Brit. Mus. B. 609
15 (100).	Nicetes	332-1 B.C.	Capua	Brit. Mus. B. 610
16 (101).	Nicetes	332-1 B.C.	Cyrenaica	Paris (Feuarent)
17 (102).	Euthycritus	328-7 B.C.	Teucheira	Brit. Mus. B. 611
18 (103).	Euthycritus	328-7 B.C.	Cyrenaica	Berlin
19 (104).	Hegesias	324-3 B.C.	Benghazi	Louvre
20 (105).	Hegesias	324-3 B.C.	Tripolis	lost
21 (106).	Cephisodorus	323-2 B.C.	Benghazi	Louvre
22 (107).	Archippus	321-0 B.C.	Benghazi	Louvre
23.	Neaechmus	320-19 B.C.	Athens (fragment)	Baltimore
24 (108).	Polemon	312-11 B.C.	Eretria (fragment)	Athens

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NOTE ON THE INSCRIPTION A.J.A. XIV, 1910, p. 66

THE following letter on the inscription published on page 66 of the current volume of this JOURNAL has been received by Professor Sterrett :

Monsieur et très honoré Collègue, —

Mon attention ayant été attirée par une note du *Quarterly Statement* du Palestine Exploration Fund (July, 1910, p. 235) sur la curieuse inscription métrique, récemment découverte à Bersabée, je me suis reporté pour de plus amples détails à la publication qui en a été faite dans le *Americ. J. of Arch.* (1910, p. 66). Cet examen m'a confirmé dans ma première impression, et j'ai été heureux de voir qu'en ce qui concerne le mot embarrassant *ἱλαθι*, elle concordait avec votre explication excluant l'in vraisemblable impératif *ἱλαθι*, admis par vos autres collègues. Je suis, sur ce point, tout à fait de votre avis, je pousserai même plus loin dans cet ordre d'idées, l'interprétation propre de ce mot, qui, à la bien prendre, me paraît contenir la clef même de ce petit puzzle. J'incline à croire que le locatif *ἱλαθι* a été employé ici pour l'adverbe de manière *ἱλαδόν*, probablement à cause du mètre (ce mauvais poète byzantine ne s'embarrassait pas pour si peu !) Je traduirais donc : "cater-vatim" ou plutôt techniquement "turmatim" — *par escadrons*. Cela posé, de quoi s'agit-il au juste ? Je ne pense pas que ce soit d'une œuvre d'art (sculpture, peinture ou mosaïque), non plus qu'un globe céleste. Notre Antipatros n'est un *artiste* à aucun titre ; c'est purement et simplement un *commandant de cavalerie*, tenant garnison à Bersabée (cf. *Notitia dignitatum*, ed. Boecking, I, p. 79: Equites Dalmatae Illyriciani Berosabae). Quel est donc ce chef-d'œuvre sans précédent qu'il se vante d'avoir exécuté ? Tout simplement *une fantasia* consistant en évolutions savantes et habiles à l'aide desquelles les escadrons

dirigés par lui avaient retracé sur le terrain les mouvements apparents des corps célestes (*Ouranos*) et la constitution même du monde (*kosmos*). Ces manœuvres militaires, en forme de *orbes* variées, devaient s'être inspirées plus ou moins de certains exercices de la *pompa* du cirque, auxquels les Anciens voulaient prêter un sens cosmique et astronomique. C'est surtout à l'époque byzantine que ces idées symboliques sont formulées (cf. Chron. Alex., Cedrenus, Isidore, et autres). Très fier d'avoir donné aux habitants de Bersabée ce spectacle, sans pareil, à ce qu'il prétend,¹ Antipatros en a fixé, ou fait fixer le souvenir mémorable dans ces quatre vers amphigouriques, qui peuvent dès lors se rendre à peu près ainsi :

“O mes yeux, quelle est donc cette merveille? Comment le *Kosmos*¹ (l'univers) a-t-il été exécuté en ce lieu? Quel mortel a trouvé (*ἤρατο κάλλος*, et non: *τὸ κάλλος*) une beauté incon nue à tous les siècles précédents? C'est Antipatros qui a exécuté cela et qui a fait voir le ciel¹ (*ouranos*) à l'aide de (ses) escadrons, en tenant dans ses mains les rênes de (ses) belliqueux cavaliers.”

A propos de l'emploi des verbes *τεύχω* et *εὕρισκω* cf. une coïncidence assez singulière avec le distique en l'honneur de Cleoetas, l'inventeur de la *ἱππάφεις* d'Olympie (Pausanias, VI, 20, 14).

Il n'y a pas, bien entendu, à s'arrêter au mirage de l'Antipatros père d'Hérode, l'inscription étant visiblement de très basse époque byzantine.

Excusez-moi, je vous prie, si j'ai pris la liberté de vous soumettre cette conjecture, heureux si elle pouvait contribuer à faire un peu de lumière sur ce texte bizarre.

Agréez, je vous prie, l'expression de mes meilleurs sentiments.

CLÉRMONT-GANNEAU.

P. 65, No. 19: *Σαούδ*. Je soupçonne tout simplement une mauvaise graphie pour *Σαού(λ)*, nom propre mieux justifiable.

¹ Ou mieux peut-être et, en tout cas, plus littéralement: *UN Kosmos . . . UN ouranos*.

ARCHITECTURE ON ATTIC VASES

Do we learn anything about Greek architecture from the representations of architecture on Attic vases; anything, that is to say, which we do not know better from extant remains of Greek buildings? It is the purpose of the present paper to argue that a negative answer to this question, if not certain, is at least more probable than an affirmative one.

The Attic vase-painters seldom attempt to render complete buildings. For the most part they content themselves with a mere suggestion, consisting of one or more columns, sometimes with the addition of an architrave, more rarely of an architrave and a frieze, still more rarely of a complete entablature. The care with which these features are drawn varies widely, of course, in different examples. But, with the rarest exceptions, the architecture depicted even on well-executed vases differs remarkably from that known to us by means of extant remains as having existed in Attica in the sixth and fifth centuries B.C. And what is more, this depicted architecture is not uniform in character, but on the contrary exhibits even in the same period, sometimes even on the same vase, a high degree of variability. Thus Doric columns on the vases are generally much slenderer than are the known Doric columns of stone, while on the other hand the two Ionic columns of the Munich cylix published in the *Archäologische Zeitung*, 1878, Pl. 11, are of proportions much stouter than the normal, one of them being less than four diameters in height, as against the normal eight or nine. Capitals exhibit a capriciousness to which the known stone forms afford no parallel; as on the Munich cylix just cited, where the *canalis* is differently drawn in each case, and is in both cases unlike the standard stone form. *Regulae* and *guttae* are placed above Ionic, as well as

above Doric, columns, but with seldom a hint of the accurate space-relation to the columns which is characteristic of Doric architecture. In short, the architecture of the Attic vases is an almost lawless architecture.

Two explanations of this state of things are *prima facie* possible. According to one¹ there existed, side by side with the stone architecture known from extant remains, an architecture of wood, employed for dwelling-houses and other common types of buildings. It is these perishable structures which the vase-painters had chiefly in mind and in regard to which they give us some trustworthy information. According to the other view the buildings which served as models for the vase-painters were of stone, or at least had stone columns, conforming essentially to the types that have survived to our time, and the eccentricities of the depicted architecture are evidence of nothing but inaccurate drawing.

No one would think of claiming strict accuracy for the architectural drawing of the vase-painters, and the question is only as to the degree of inaccuracy. Without going into minor details let us consider two matters of fundamental importance. The Attic vase-paintings are supposed by M. Vallois and those who agree with him to demonstrate for the sixth and fifth centuries B.C. the existence and prevalence of wooden columns and the existence of a mixed order, viz. Ionic columns surmounted by a Doric or partly Doric entablature. If the vases do not prove as much as this, they do not prove anything regarding architecture.

The chief evidence for wooden columns is the extreme slenderness of most of the Doric columns on the vases. But these slender columns are used for structures which were probably or certainly of stone. Thus a common subject on black-figured hydrias is a fountain-house,² where women draw water. It is a plausible conjecture, especially as in one example the fountain is labelled "Calirrhoe," that this fountain-house is

¹ This view has been set forth at length by R. Vallois in an article entitled 'Étude sur les formes architecturales dans les peintures de vases grecs' and published in the *Revue archéologique*, XI, 1908, pp. 359 ff. The present article is much indebted to that of M. Vallois.

² E.g. Gerhard, *Auserlesene Vasen*, IV, 307, 308.

intended for the famous Enneacrunus constructed by Pisistratus. Is it credible that an edifice of this character and this importance had columns of wood? Again, on a fine red-figured cylix¹ of the Periclean age we find the temple of Apollo at Delphi indicated by an excessively slender Doric column. Here the actual material is in no doubt.

To this argument it will be answered that, while the testimony of the vase-painters may not be decisive as regards a particular building, their slender Doric columns are good evidence that they had such columns about them and in sufficient numbers to determine their habitual mode of representation. But is this theory of prevalent wooden columns likely? Such columns would have been used, if anywhere, in private houses. Now our knowledge of the ancient Greek house is pitifully meagre, and such hints as to the materials of construction as we do get are from a somewhat later period than that to which the Attic vases chiefly belong. Still these hints deserve to be cited.

Thuc. II, 14: *ἀντῶν τῶν οἰκιῶν καθαιροῦντες τὴν ξύλῳσιν*. Here the word *ξύλῳσις* is indefinite, but Pollux at least understood it to mean roof-timbers; cf. Poll. 7, 124: *ἐρέψιμα ξύλα, ἃ Θουκυδίδης εἶπε τὴν ξύλῳσιν*. If the houses had had columns of wood, these would have been carried off also.

Thuc. III, 68, 3: *καὶ ὀροφαῖς καὶ θυρώμασι τοῖς τῶν Πλαταιῶν ἐχρήσαντο*. If the houses of the Plataeans had had columns of wood, these would have been saved and used as well as the roof-timbers and the doors.

Eur. *H.F.* 1037-8: *λαῖνοις . . . κίουσιν οἶκον*. The columns in the house of Heracles are imagined by Euripides as of stone.

Xen. *Mem.* III, 1, 7: *ἐπειδὴν δὲ ταχθῇ κάτω μὲν καὶ ἐπιπολῆς τὰ μήτε σηπόμενα μήτε τηκόμενα, οἳ τε λίθοι καὶ ὁ κέραμος, ἐν μέσῳ δὲ αἱ τε πλίνθοι καὶ τὰ ξύλα, ὥσπερ ἐν οἰκοδομίᾳ συντίθεται, τότε γίγνεται πολλοῦ ἄξιον κτῆμα οἰκία*. This is the most complete account we possess of the materials of a Greek house. Unfortunately it is possible to disagree as to the precise meaning of *τὰ ξύλα*. I understand them to be the timbers of floors and roofs, which, like the sun-dried bricks of the walls, are placed between the stone foundations and the roofing tiles. If this is right, there is no suggestion of wooden columns.

¹ Gerhard, *op. cit.* IV, 328.

Theophrastus, *Hist. Plant.* III, 14, 1; IV, 1, 2; 2, 8; V, 3, 3; 3, 5; 3, 7; 5, 2; 6, 1; 7, 6. In these passages Theophrastus refers to various kinds of wood as suitable for roof-timbers and for doors. Nowhere does he speak of columns. It may be added that the other authorities cited by Blümner, *Technologie . . . der Griechen und Römer*, II, 245–296, are equally silent, except for the reference in Pliny, *N.H.* XIV, 9, to columns of vine-wood belonging to a temple at Metapontum. It is reasonably safe to conclude that by the time of Theophrastus (ca. 300 B.C.) the use of wood for columns was negligible.

The evidence afforded by actual remains does not go back as far as the literary evidence. Such as it is, it points in the same direction. Thus a house or house-like building in Piraeus of the third or second century B.C. had limestone columns.¹ In Priene columns of stone occur in houses,² but no indication of wooden columns is reported. In the houses on the island of Delos columns of stone were the rule; wooden supports are reported in a single instance.³

Thus it appears that by 300 B.C., and probably by 400 B.C., there was little or no use of wooden columns in Greek domestic architecture, at least in Attica and regions similarly situated as to their timber supply. That conditions could have been entirely different in 500 B.C. appears to me improbable. Deforestation had been going on since a much earlier time,⁴ and suitable timber for building was becoming scarce, whereas easily worked stone was abundant. Why then, when columns were needed, should stone not have been generally used?

Then consider the combination of Ionic or quasi-Ionic columns with the regulae and guttae of the Doric architrave.⁵ In stone architecture, as known by extant remains, the contamina-

¹ *Ath. Mitt.* IX, p. 284.

² Wiegand & Schrader, *Priene*, pp. 287, 298.

³ *Bulletin de correspondance hellénique*, 1906, p. 647. These supports were square posts, not columns, as M. Vallois misleadingly calls them (*op. cit.* pp. 363, 376). As the author of the report in the *Bulletin* speaks of this case as differing "de la plupart des cours précédemment découvertes" he may know of other instances of wooden supports in place of stone columns, but apparently not. See his note 7 on the page referred to.

⁴ Plato, *Critias*, 111, c.

⁵ E. g. Hartwig, *Meisterschalen*, Pl. LIV; Pollak, *Zwei Vasen aus der Werkstatt Hierons*, Pls. I–III; *Antike Denkmäler*, II, Pl. 1.

tion of the two orders takes place very slowly. The earliest signs of it are in the Parthenon and the Theseum, in which, however, the integrity of the principal order is rigorously preserved. The Ionic buildings of the fifth and fourth centuries show no intrusion of Doric elements. Yet we are asked to believe that a combination which, except for its occurrence on a few vases, is unexampled before the Hellenistic period, was actually used a generation before the Parthenon. Does not this put a severe strain on our credulity?

On the other hand, there is no serious difficulty in supposing that the vase-painters, even the more accomplished ones, rendered with great inaccuracy the architecture which they had about them. People who are learning to draw do not succeed equally well with all the things they attempt. Some things are intrinsically more difficult than others, and some things may for one reason or another excite more interest than others, and so be more diligently practised. Thus the same vase-painters who rendered with all but perfect precision the human figure contented themselves with childish representations of trees. Similarly, while articles of household furniture on vases are generally well drawn, the grave monuments on Attic lecythi are seldom more than loose reminiscences of the actual monuments which the potters of the Ceramicus had almost at their doors. Why should the case not be the same with buildings? The excessive slenderness with which Doric columns are commonly drawn has its parallel in the excessive slenderness of the legs of horses as drawn in the black-figure style;¹ only for some obscure reason it maintained itself more persistently. As for the drawing of Doric regulae and guttae above Ionic or quasi-Ionic columns, it must be remembered that the Ionic order was probably not introduced into Attica till some time in the latter half of the sixth century, so that Ionic buildings which could serve as models were few. Indeed, it looks as if the vase-painters got suggestions for their Ionic columns to a considerable extent from pedestals of statues and legs of furniture.² Such models had no architrave, and if a painter chose to add an architrave,

¹ Vallois, *op. cit.*, p. 362.

² This applies to columns whose capitals are of the so-called Aeolic type; e.g. Hartwig, *Meisterschalen*, Pl. LIV.

it is small wonder that he should have drawn in careless fashion the Doric features to which he was most accustomed.

To sum up: I do not maintain that no decorator of Attic pottery in the sixth or fifth century B.C. ever saw a wooden column. That would be rash, especially in view of the various regions from which some of these decorators came. But I doubt whether wooden columns had any influence in determining the forms drawn on the vases, and I think it unsafe to draw any inference from the vases as to details of forms actually in use. Also I think it entirely unlikely that a "mixed order" existed at the time referred to, and I regard the occurrence of this combination on a few vases as an accidental anticipation of a development which was to take place three centuries or so later.

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RECENTLY PUBLISHED MEASUREMENTS OF THE PISA CATHEDRAL

IT is generally known to the members of the Archaeological Institute of America that during the years since 1895, inclusive, I have published a large number of observations relating to the cathedral of Pisa. The most recent of these publications are those which have appeared in the *American Architect* of August 4, September 8, October 27, and December 1, 1909, and of January 25, March 16, 1910. The facts to be made known by this paper were published on the date of October 27. The circulation of the *American Architect* is naturally confined to the architectural profession, and the facts recently published are so important as to appear worthy also of a place in an archaeological journal.

The original observations for the levels of the foundations of the Pisa cathedral and for the related levels of the great middle stringcourse were made in 1895. They were originally entered, for record, on a ground plan of the cathedral. They were not, however, analyzed or quoted in text publication as a complete whole until the preparation of the *Catalogue of the Edinburgh Exhibition*, which was held in 1905. The circulation of this catalogue was naturally limited to the Edinburgh public and to those who visited this exhibition.

Thus, so far as the world of Christian archaeology is concerned, this present communication is the first complete account of the levels of the foundations of the Pisa cathedral and of its great middle stringcourse.

As the first point to be made is that the water-table or plinth course of the cathedral is built to the varying slopes of the earth's surface, it seems desirable to show that, although the fact is very exceptional, it is not isolated. Hence a hitherto

unpublished church is first called on for that evidence. This is the church of the Pieve Nuova at Santa Maria del Giudice near Lucca (Figs. 1-5).¹ The water-table is built to the slopes of the surface on both sides of the church. In a length of about 80 feet the church is built downhill, so to speak, to the amount of 2.31² feet on the north side, and 2.20 on the south



FIGURE 1.—FACADE OF THE PIEVE NUOVA, AT SANTA MARIA DEL GIUDICE, NEAR LUCCA (TWELFTH CENTURY ROMANESQUE).

side. The cornices are built to the true level, and the cutting of some of the blocks by which the true level was obtained is shown in Figure 3.

Now in the Pisa cathedral the length of the church is 280 feet instead of 80 feet (approximate measurement and not in-

¹ Figures 1, 2, 3, 6, 7, 8, and 9 are from photographs of the Brooklyn Museum Surveys; Figures 4 and 5 are from the *American Architect*, October 27, 1909, p. 163.

² The measurements, when not otherwise specified, are given in feet and decimals.

cluding the apse), but the downward slope of the water-table from the highest point at the northwest angle of the façade to the lowest point, at the southeast angle of the choir, is 3 feet (or accurately 3.02 feet).



FIGURE 2.—THE PIEVE NUOVA, AT SANTA MARIA DEL GIUDICE, NEAR LUCCA. VIEW OF NORTH WALL, LOOKING UP THE HILL.

It is an astonishing fact that this has never been mentioned or figured by any of the surveyors who have published the cathedral.

That this fact is also habitually overlooked by ordinary vision is certain. It was, for instance, wholly overlooked by myself

and by Mr. John W. McKecknie, who took these levels under my direction and with my assistance, in 1895. The sum total of the levels was the greatest possible surprise to us.

The explanation of the habitual oversight lies first in the distribution of the slopes. If we assume, for instance, the usual

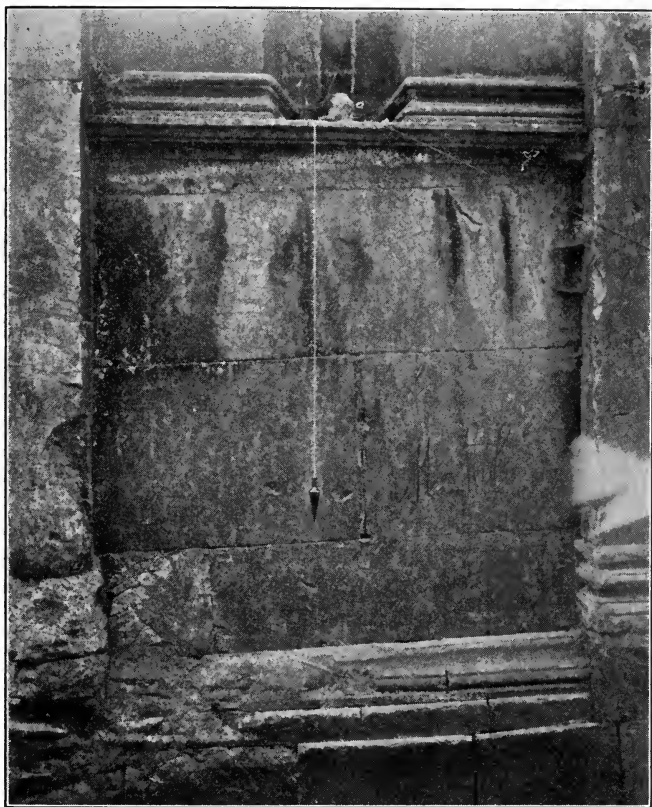


FIGURE 3. — THE PIEVE NUOVA, AT SANTA MARIA DEL GIUDICE, NEAR LUCCA.

(Detail of the North Wall. The plumb-line shows that the window ledge above the sloping water-table is level. Under the window ledge may be seen the wedge-shaped blocks by which the rectification of the slope is obtained.)

approach from the point of view taken in Figure 8, one foot of the slope (accurately 0.86) on the west side at the façade is invisible (Fig. 6), 4 inches of slope (accurately 0.31) on the west side of the south transept are also invisible (Fig. 7), $2\frac{1}{2}$ inches slope (accurately 0.21) on the south wall of the nave escape

notice, of course (Fig. 8). There is a total slope of $19\frac{1}{2}$ inches (accurately 1.64) on the south side of the south transept and on the south side of the choir (Fig. 8). What we have to consider first is, that out of the whole 3 feet only 1 foot $7\frac{1}{2}$ inches is actually in view just here. From any other single point of view many parts of the whole slope are also beyond the range of vision. As to separate parts of the slope within the range of vision, my own experience on the façade side is, that a slope of a foot passes unnoticed. A gentle downward slope in the southeastern part of the church, from transept to apse, may be easily noticed by close attention. The fact is, however, that all surfaces slope gently as seen in perspective, and that the eye will therefore either discount gentle slopes entirely or, at least, utterly fail to realize their true amount.

At all events, the fact is that the water-table of this cathedral is built to the surface and that this surface slopes 3.02 from northeast to southwest.

At Santa Maria del Giudice the cornice and roof line are level—how is it at Pisa? Here we turn to the south side elevation of Cresy and Taylor.¹ The heights of the south side to the roof line of the outer wall are given as 57 feet 8 inches at the façade and as 57 feet 5 inches at the apse in the corresponding cornice. Hence, this roof line slopes 3 inches more than the water-table, which slopes 2.16 feet of the entire slope of 3.02, although no mention of the slopes is made by Cresy and Taylor. But how are these measures distributed? By Cresy and Taylor's elevation at the façade end it is 39 feet 3 inches to the middle stringcourse and 18 feet 5 inches to the roof cornice, but at the apse it is 37 feet 5 inches to the string and 20 feet to the corresponding cornice. In other words, the south side string is 1 foot 10 inches out of level as compared with the water-table (the difference between 39 feet 3 inches and 37 feet 5 inches), according to Cresy and Taylor. But they represent the water-table as level, whereas it slopes 2.16 feet, or 2 feet 2 inches. As we now know the true levels, it would appear from Cresy and Taylor's measures, since the south side stringcourse has 1 foot 10 inches more slope than the water-table, that it therefore slopes a sum total of 4 feet. Cresy and Taylor's heights at the east

¹ *Architecture of the Middle Ages in Italy*, pl. 4 (1829).

end are figured at the centre of the apse, whereas the Brooklyn Museum corresponding measures are taken at the southeast choir angle, but when the proper allowance is made for this difference the two results are practically identical. But Cresy and Taylor have given no measures for separate parts of the church as regards the stringcourse. If the levels for the stringcourse are computed, as they should be, from the northwest angle of the façade



FIGURE 6. — PISA, CATHEDRAL. VIEW OF THE FAÇADE, THE NORTH WALL, AND THE WEST SIDE OF THE NORTH TRANSEPT.

(To illustrate the table of levels for the slopes of the pavement and the stringcourse.)

to the southeast angle of the choir, that is, on the line of greatest slope in the water-table, it is found that the string slopes $4\frac{1}{2}$ feet (accurately 4.46); that is to say, it slopes $1\frac{1}{2}$ foot more than the water-table, which slopes 3 feet. On the other hand, we should not forget that Cresy and Taylor's measures prove that this slope of the string is made good and rectified in the second story, which has the same height, within 3 inches, at opposite ends of the church on the south side.

We will now examine the only surveys ever made, for the

separate portions of the great middle stringcourse; namely, those of the Brooklyn Museum survey.

When the levels are taken on the north and south walls of the nave, it is found that the water-table and earth's surface slope only 3 inches on the north side and 2 inches on the south

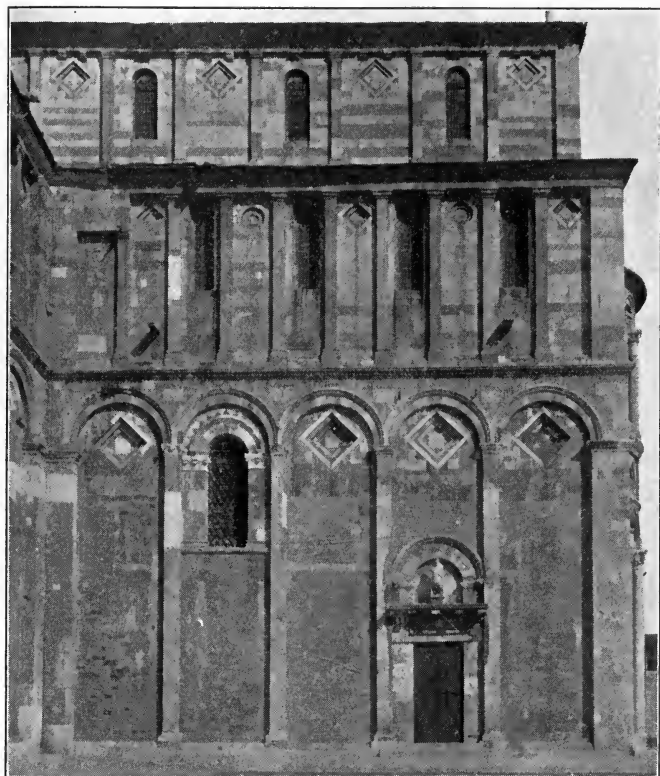


FIGURE 7.—PISA, CATHEDRAL. SOUTH TRANSEPT, WEST SIDE.
(To illustrate the table of levels for the slopes of the pavement and the stringcourse.)

side, but the corresponding strings *slope 2 feet to a side* (and this slope is rectified in the second story).

When the levels are taken on the *west side* of the transepts, it is found that the water-table and the earth's surface *slope down*, on both sides, away from the nave, and it is found that the stringcourses *slope up*, on both sides, away from the nave. It is also found, although the water-table slopes vary on both

sides (only 0.01 on the west side, north transept, and 0.31 on the west side, south transept), that the distance from water-table to string is the same on both sides, the rise of the string being closely $5\frac{1}{2}$ inches on each side from the line of the water-table. This result is obtained by variations in the rises of the string, which equalize and discount the variations in the downward slope of the water-table. Thus on the north transept, west side, the water-table slopes down 0.01 and the string slopes up 0.44. On

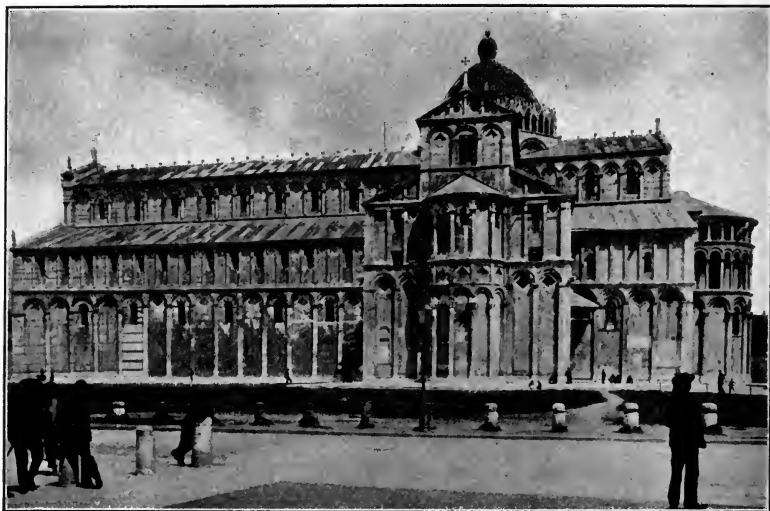


FIGURE 8. — PISA, CATHEDRAL. GENERAL VIEW OF THE SOUTH SIDE.
(To illustrate the table of levels for the slopes of the pavement and the stringcourse.)

the south transept, west side, the water-table slopes down 0.31 and the string slopes up only 0.09.

Thus when the building is considered without reference to the surface slope, the rise of the string is 0.45 ($5\frac{1}{2}$ inches) on the north side and 0.40 (5 inches) on the south side; a variation of only 0.05 (or about $\frac{1}{2}$ inch).

Beyond the points reached in this description, viz. northwest angle, north transept, and southwest angle, south transept, and moving east, the string follows the slope of the water-table, with measurements which correspond to the given slope of the given part of the building quite closely. Minor variations due to builders' errors are corrected, when they occur, in the section

next to the original error—so that the total error on the north and east sides is only 0.06 or $\frac{3}{4}$ inch. On the south side the total error is only 0.20 or $2\frac{1}{2}$ inches.

We will next consider the façade. This was the last part of the building to be completed. On the façade side the water-table and earth's surface slope down to the south 0.86

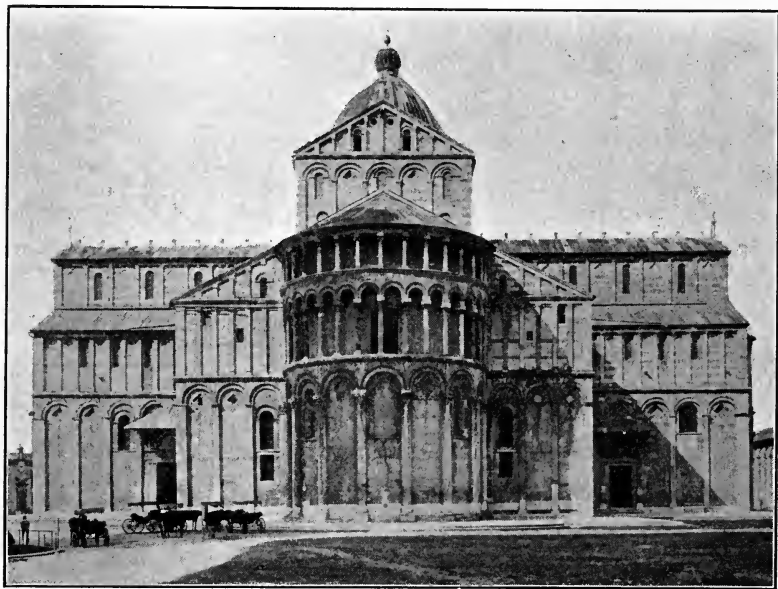


FIGURE 9.—PISA, CATHEDRAL. THE CHOIR IN PARALLEL PERSPECTIVE.

(To illustrate the table of levels for the slopes of the pavement and the stringcourse.)

($10\frac{1}{4}$ inches) and the string slopes the same way 0.56 ($6\frac{3}{4}$ inches).

All minor errors were of course corrected at this end of the building by joining the two western ends of the side stringcourse.

We will now rehearse and tabulate the accurate levels by which these various facts have been made known:

The accuracy of these levels is attested by the fact that they were taken by beginning at the northwest angle of the cathedral and moving thence in two directions, meeting at the southeast angle of the choir. One series of levels was taken by moving east along the north side of the church. The other series

was taken along the façade, then turning east on the south side. The simple fact that the total footings of slope, as levelled in these two different directions, corresponded exactly, at the southeast angle of the choir, is the test of the accuracy of the levels.

TABULATED SUMMARY OF LEVELS FROM THE NORTHWEST, TO THE
SOUTHEAST, OPPOSING ANGLES OF THE CATHEDRAL

The pavement falls, on the north side of the entire building and east side of the choir (the measures begin at the northwest angle):

North wall	0.26
West side, north transept	0.01
North side, north transept	0.87
North transept, east angle to choir	1.05
East side of choir	<u>0.83</u>
Total fall	3.02

The pavement falls, on the façade and south side of the entire building (the measures begin at the northwest angle):

Main façade	0.86
South wall	0.21
West side, south transept	0.31
South side, south transept	0.63
South transept, east angle to choir	<u>1.01</u>
Total fall	3.02

The stringcourse (levels in the same order for the north side of the entire building and east side of the choir):

Falls, north wall	2.09
Rises, west side, north transept	0.44
Falls, north side, north transept	1.16
Falls, north transept, east angle to choir	0.49
Falls, east side of choir	<u>1.16</u>
Total fall	4.46

The stringcourse (levels in the same order for the façade and south side of the entire building):

Falls, façade	0.56
Falls, south wall	2.15
Rises, west side, south transept	0.09
Falls, south side, south transept	0.63
Falls, south transept, east angle to choir	<u>1.21</u>
Total fall	4.46

COMPARISON OF LEVELS FOR EACH PORTION OF THE CHURCH AND
RESULTING OBLIQUITIES OF CONSTRUCTION AS DISTINCT
FROM OBLIQUITIES OF LEVEL

FACADE

Pavement slopes down to south	0.86
String slopes down to south	0.56
String rises as compared with pavement	0.30

NORTH WALL

Pavement slopes down to east	0.26
String slopes down to east	2.09
String falls as compared with pavement	1.83

SOUTH WALL

Pavement slopes down to east	0.21
String slopes down to east	2.15
String falls as compared with pavement	1.94
Variation in the obliquity of the strings on north and south sides of the nave when compared with the pavement	0.11

NORTH TRANSEPT. WEST SIDE

Pavement slopes down to north	0.01
String slopes up to north	0.44
Obliquity of the string as related to pavement	0.45

SOUTH TRANSEPT. WEST SIDE

Pavement slopes down to south	0.31
String slopes up to south	0.09
Obliquity of the string as related to pavement	0.40
Variations in obliquity of the strings on the west sides of the transepts, when compared with the pavement	0.05

NORTH TRANSEPT. NORTH SIDE

Pavement slopes down to east	0.87
String slopes down to east	1.16
Builder's error, excess downward on string	0.29

NORTH TRANSEPT EAST ANGLE TO NORTHEAST CHOIR ANGLE

Pavement slopes down	1.05
String slopes down	0.49
Builder's apparent error of underestimate in lowering string	0.56
Builder's real error of underestimate in lowering string ¹	0.27

¹ Because correcting to amount of 0.29 the previous error in the opposite direction, viz. the one made at north transept, north side.

EAST SIDE OF CHOIR

Pavement slopes down to south	0.83
String slopes down to south	1.16
Builder's apparent error of excess in lowering string . .	0.33
Builder's real error in excess of lowering string ¹ . . .	0.06

SOUTH TRANSEPT. SOUTH SIDE

Pavement slopes down to east	0.63
String slopes down to east	0.63
Builder's error	0.00

SOUTH TRANSEPT SOUTHEAST ANGLE TO SOUTHEAST ANGLE CHOIR

Pavement slopes down	1.01
String slopes down	1.21
Builder's error	0.20

If the order of the building reversed the order of arrangement here followed, which is probable, for it is most likely that the entire sequence of construction was from east to west, the comparisons of real and apparent error would make the corrections in the opposite direction. In that case, in considering the east and northeast sides, the first error, 0.33, was compensated for by 0.56 in reverse direction, which was 0.23 too much. The next apparent error of 0.29 in again reversed direction would make the real error 0.06 on the north side, north transept. It is evident that all minor errors could be easily corrected when it came to joining the two west ends of the north and south strings, for here it would be only a question of stretching a cord between the two points across the façade.

CONCLUSIONS

Is any philosophy of these remarkable facts possible? This question can be more easily debated by recalling a large variety of additional and related facts which have been published for the same cathedral, and for other churches which I have previously mentioned in various periodicals or catalogues.

For possible explanations I will therefore refer to the Catalogue of the recently installed Architectural Exhibition of the Brooklyn Museum, to my recent publications in the *American Architect*, and to others in the *Architectural Record*, as published in 1896 and 1897.

¹ Because variations otherwise correct error of 0.27 in opposite direction at north transept, northeast angle to northeast choir angle.

For the moment I wish rather to urge the singular importance of these particular proofs that these particular facts are themselves intended and constructive, and I wish also to call attention to the fact that these particular proofs are hitherto unpublished in complete form, with the exception mentioned.

To sum up these proofs, we have: first the correspondence of measures for corresponding facts on opposite sides of the church. Thus although the stringcourses on the north and south sides of the nave are out of level, about 2 feet on each side, the discrepancy between the two sides is only 0.11 (or a little more than one inch) when water-table and string are compared.

Again, as regards these stringcourses, there is the fact that the slope is rectified in the second story, and the crowning evidence is found in the wedge-cutting of the blocks above and below the strings, as shown in photographs, many of which have been published and all of which are on exhibition in the Brooklyn Museum.

As regards the west sides of the transepts it is apparent that accidental settlement cannot explain slopes on the same wall in contrary directions, for while the water-table slopes down, the string slopes up, on the west sides of the transept. The correspondence of measures on the two given and opposite sides, as between water-table and string, varies only 0.05 ft. (or only $\frac{1}{2}$ an inch) and the variations in amount of the slope of the string by which this uniformity is obtained are also a positive proof of intention.

As to the parts of the cathedral beyond the west sides of the transepts, it is now known that the water-table follows the slopes of the surrounding surface in every other individual part of the building. It does only the same here. It is also to be noted that the middle string to the east of the west sides of the transepts follows the general law which rules throughout the building, when the roof line of the outer wall is considered. It is shown by the measures of Cresy and Taylor, as well as by those of the Brooklyn Museum, that the roof line of the entire building is parallel with the water-table, up to the cornice of the outer wall of the nave, and its continuation in the choir. We have also seen that the measures given by Cresy and Taylor

agree with those of the Brooklyn Museum for the total obliquity of the middle stringcourse on the south side of the building, when this obliquity is compared with the line of the pavement, although the obliquities due to slope, or to following slope, in the upper alignment, are ignored. (Rohault de Fleury not only ignores the slopes of surface, but he also represents the middle stringcourse as horizontal in his elevations for the south side of the nave.¹)

In the matter of explanations, this much may be suggested. As regards the surface slopes of the water-table, it was doubtless held to be more beautiful and artistic to build this base moulding to the surface. Consider how much the building would lose if it stood on an inartistic and unornamented pile of masonry which would have raised the building 3 feet from the earth at the choir, and which would necessarily have carried an irregular front of undecorated masonry under the façade. Instead of rising from the surface, this church, like so many others, would have risen from an irregular pile of bare masonry. The undulating irregularity of the surrounding surface which now adds great beauty to the building would otherwise have involved unsightly methods of building to level.

In the Street of the Silversmiths at Pompeii the masonry and mouldings also incline almost imperceptibly with the slope of the street.²

As regards the obliquities of the middle stringcourse, it should be remembered that all such obliquities are translated by the eye into the optical effects to which these obliquities correspond. In photography, or in surveys, they appear abnormal, but in actual vision they result only in an effect which a shifting of position would be sufficient to produce. In actual vision, lines are never horizontal, unless they are seen in parallel perspective. In all other positions all horizontals are oblique in actual vision. To build them oblique is simply to build an effect of shifted position. When this point is once understood, it is easier to realize that the effect of optical vibra-

¹ *Monuments de Pise*, pl. XII (1859).

² See article 'Optical Corrections and Refinements,' in the *Dictionary of Architecture*, published by the Architectural Publication Society, printed by Thomas Richards, London, Vol. VI, p. 17.

tion or "life," which undoubtedly results, may have been the result intended.

It is my own conviction that the straightforward and bold acceptance of the irregularities incident to the use of heterogeneous material, which appears so widely in the details of this cathedral, and notably in the columns of the nave, is simply a more familiar phase of the spirit shown in building to the slope. Another illustration of this spirit is found in the careful avoidance of monotonous regularity in the masonry stripes (of white and dark green marble), a trait which is shown in all parts of the cathedral, both interior and exterior. The unfortunate results of geometrical regularity, in this particular, are shown at Siena and at Orvieto, not to speak of S. Miniato at Florence or of the Florence cathedral. (In the latter instance the irregular weathering of the surface color has mitigated the unpleasant effect of the monotonous geometrical patterns.)

Thus we may assume that the demonstrably intended asymmetries of the Pisa cathedral (and among these must undoubtedly be included those which are proven to exist by the debated levels) represent a dislike of formalism and monotony which very possibly included a preference for the vibratory optical effect which the debated asymmetries certainly produce. A distinguished New York architect, Mr. William Welles Bosworth, has recently coined the term "temperamental architecture" to cover the intentional asymmetries of mediaeval building. This term must appeal to many, as suggesting, better than any other single term, the various explanations, or the various phrasings of the same explanation, which may occur to other critics.

Once more, however, and in conclusion, the point is urged that it is not the purpose of this article to debate questions of aesthetics. These cannot long remain in doubt when the constructive facts are established. It has been the opinion of a certain school of antiquarians up to date that all differences of level in the Pisa cathedral are due to subsidence. It is in order to offer conclusive evidence on this particular head that this article is published.

WILLIAM H. GOODYEAR.

BROOKLYN, 1910.

FURTHER NOTES ON JUSTUS VAN GHENT

THE following may be of interest to those who have read my 'Notes, etc.,' printed in the last number of this JOURNAL. Shortly after my first article went to the press, I happened to visit the ducal picture gallery in Altenburg (Saxe Altenburg). This gallery, among many fine works of Italian primitives, possesses a curious painting on canvas (Fig. 1). It represents, on golden ground, the dead Christ held up by three elderly men. Only the upper half of the body of Christ and the heads of the supporting men can be seen. Over the scene is a banderole, bearing the inscription: *Honor et benedictio crucifixo filio qui nos suo supplicio redimit ab auxilio*.¹ The whole is enclosed by a painted frame which is decorated with flowers, leaves, snakes, and butterflies. In the middle of the bottom part of this frame there is an escutcheon with a crowned standing lion. This last is apparently a later addition to the picture. Although the painting has been terribly damaged and its color is almost entirely gone, so that it produces almost the impression of a monochrome, there is enough beauty in the composition and drawing to make it apparent that the author of it must have been an important master. There is sufficient external and internal evidence, I believe, at our disposal to prove, almost beyond doubt, that this master could have been no other than Justus van Ghent. The account books of the fraternity of Corpus Christi in Urbino (the same for which Justus painted the famous picture at Urbino, the Communion of the Apostles) contain, under the year 1475, the following note: *Giugno . . . E più tela a M^{ro} Giusto dipentore che diceva voler fare un insegna bella per la fraternita* (cf. Crowe and Cavalcaselle, *The Early Flemish Painters*, Ger-

¹ Sic! it should be, of course, "*exilio*."

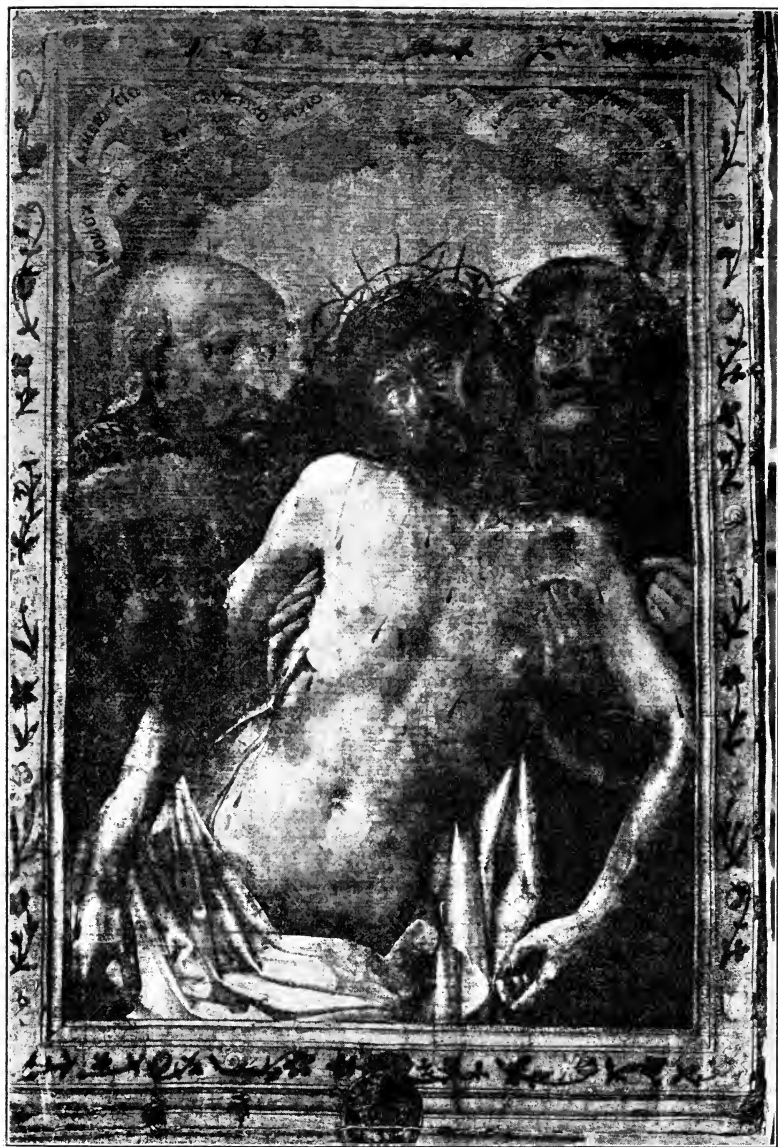


FIGURE 1. — PIETÀ, BY JUSTUS VAN GHENT. ALTENBURG; LINDENAU MUSEUM.

man edition, p. 190). This means that in June, 1475, our painter received canvas from the fraternity, which he said he would turn into a "beautiful ensign." I think in the Altenburg canvas we have this ensign before us. The Baron von Lindenau, founder of the gallery, received the picture as a premium from a Roman picture dealer whose customer he had been for some time.¹ At that time, *i.e.* in the thirties of the last century, it was attributed to Antonello da Messina. The painting will not fail to impress the student as a banner that was used in religious processions. Especially in Umbria such "gonfaloni" were popular, and a number of them, although without exception on a larger scale, have come down to us and can be studied in the hill towns of this province. That it was not intended for framing, is shown by the circumstance that it has a *painted frame*. The decoration of this frame, the flowers, snails, etc., occurs frequently on Central Italian pictures of the period, but never on Flemish pictures. (Cf. the small Madonna of Giovanni di Paolo in Altenburg, reproduced in the catalogue of the gallery, which shows a similar treatment.) The composition is also Italianizing. We can find the same in "Pietàs" of Venetian or Northern Italian origin. The treatment of the hair and draperies is very similar to that in the "Communion of the Apostles" in Urbino and the "Epiphany" in Trevi, which last I published in my preceding article. The Trevi picture, however, is not as fine as the one in Altenburg and betrays a hasty execution. In spite of the several characteristics, which seem to indicate that the picture was painted in Italy,² there is enough in it to show the artist's affinity to Hugo van der Goes. I have in mind the several "Pietàs" commonly attributed to H. van der Goes, some of which were grouped and published by Joseph Destrée in *L'Art Flamand et Hollandais*, 1907, p. 168 sqq. According to a friendly communication of Director Friedländer, of the Royal Print Room, Berlin, there is a replica of this canvas in the Bargello, Florence. I could not find it, how-

¹ This last information, as well as the photograph of the painting, I owe to the courtesy of Professor Felix Becker of Leipsic, the learned editor of the *Künstlerlexicon*.

² The two heads, to the right and left of Christ, bear witness to the artist's acquaintance with the works of Piero della Francesca.

ever, in the catalogue of Supino, nor was I able to secure a photograph of it. It is perhaps worth mentioning that in the old catalogue of Baron von Lindenau the canvas is regarded as a processional banner. It is only natural to suppose that this painting was intended for a Corpus Christi fraternity. No more appropriate subject than the one represented in it could be found for such a work; it is the Body of Christ. The types of the heads afford analogies to the other works of Justus; I have especially in mind the tapestry in Boston, published by me in this JOURNAL in my previous article on Justus.

In the gallery of the castle at Urbino there is a "Pietà" by Giovanni Santi, of pentagonal shape, which could have been inspired by the Altenburg canvas. Especially the prominent place given to the hands and their somewhat gross forms make one think so. This picture is reproduced in Calzini, *Urbino e i suoi monumenti*, p. 118.

Passavant alludes in his *Raffael* (German edition, Vol. I, p. 431) to six small panels with apostles in the sacristy of the cathedral, and to a tempera picture with the preaching of St. John the Baptist in the sacristy of the Oratorio di San Giovanni Battista, both in Urbino. All these, he thought, showed the influence of Justus very plainly. I have not been able, however, to trace these paintings.

The passage in Vespasiano Fiorentino, *Vite di uomini illustri* (ed. Cardinal Mai in *Spicilegium Romanum*, tom. I, Romae MDCCCXXXIX), which is the basis for all our knowledge of Justus' activity in Urbino, runs as follows: "*Della pittura n' era intendentissimo*;¹ *e per non trovare maestri a suo modo in Italia che sapessino colorire in tavole a olio, mando insino in Fiandra per trovare uno maestro solenne, e fello venire a Urbino, dove fece fare molte pitture di sua mano solennissime: e massime in uno suo istudio, dove fece dipingere i filosofi, e poeti, e dottori della così greca come latina, fatti con uno maraviglioso artificio; e ritrassevi la sua Signoria al naturale, che non gli mancava nulla se non lo spirito. Fece venire ancora di Fiandra maestri che tessavano panni d'arazzo. . . .*"

The words "*e ritrassevi la sua Signoria*" have been hitherto

¹ Vespasiano is speaking of Federigo da Montefeltre

interpreted "and he portrayed his duchess." This is wrong, however, for it is plain that Vespasiano means "and he por-



FIGURE 2.—MADONNA, BY JUSTUS VAN GHEENT. BERLIN; SCHLOSS.

trayed there (*i.e.* in the studio) his lordship," and that he means the portrait now in the Barberini gallery.

The fact that Vespasiano tells us that Federigo made tapestry weavers come from Flanders makes it probable that Justus furnished them with designs. Further research will probably

lead to the recognition of other tapestries than the one published by me, as having been designed by Justus.

Dr. W. R. Valentiner, of the Metropolitan Museum of Art, New York, was so friendly as to call my attention to a group



FIGURE 3.—MADONNA, BY JUSTUS VAN GHENT. FLORENCE ; PALAZZO CORSINI.

of pictures, which in his opinion can be safely regarded as works of Justus van Ghent or his pupils. I will first enumerate these works and then give my observations regarding them.

1. Berlin, Königliches Schloss : Madonna and Child.
2. Florence, Palazzo Corsini : Madonna and Child.
3. Rome, Palazzo Corsini : Mater Dolorosa.
4. Philadelphia, Collection of Mr. Johnson : Crucifixion (this panel was formerly in the Kums Collection, Antwerp).
5. Berlin, Kaiser Friedrich Museum (No. 526) : Madonna and Child with donors.
6. Turin, Royal Gallery : Madonna and Child in a Gothic room

1 and 2 could be by Justus van Ghent (see Figs. 2 and 3). Especially the Berlin picture, when compared to the portrait of Battista Sforza with Guidobaldo Montefeltre on the Urbino "Communion," makes this probable. The fact that there is nothing in these two paintings that would remind one of Italy makes me incline to believe that they belong to Justus' activity before he came to Italy. This is, however, a hypothetical conclusion and, like the attribution itself, is open to discussion. The modelling of the faces and of the hands is similar to that in other works of Justus, although these works impress one as being less mature than, for instance, the Urbino "Communion." The type of the Madonna betrays in these pictures, in spite of reminiscences of Hugo van der Goes, a great deal of individuality.

The "Mater Dolorosa" of the Corsini palace, Rome, is, so far as I can see, also a work of Justus van Ghent (see Fig. 4). The architectural background is Italian (one might think of the architecture of Luciano Laurana, the Dalmatian architect of Federigo), but the Virgin is almost purely Flemish. There is a swing to the drapery, however, that goes beyond the capacity of a local artist of the Netherlands who has not seen works of Italian masters of the Renaissance.

Mr. Johnson's picture is the most remarkable work of art among the paintings listed above (see Fig. 5). It is most delicate in finish, masterly in characterization, and especially successful in the rendering of sorrow. The figure of Christ is almost identical with that on the Boston tapestry (see the

reproduction in my preceding article), where the Crucifixion is represented in the last compartment to the right. The St. John of Boston also resembles the one in the picture in question. The heads of the male figures might have been influenced by Piero della Francesca. This picture is the finest of all the works that can be attributed to Justus and it is in a fine state of preservation.

No. 5 of my list does not seem to justify an attribution to Justus or his school; it is more likely the work of a follower of Roger van der Weyden.

Nor can I see any affinity to Justus' work in No. 6, the small Madonna of the Turin gallery. This picture ap-



FIGURE 4. — MATER DOLOROSA, BY JUSTUS VAN GHENT. ROME; PALAZZO CORSINI.

pears to be earlier than those hitherto considered, and it shows the dependence of its author on the school of Jan van Eyck.

I am aware of the fact that my attributions will probably not meet with the approbation of all students of the problems touched upon in this and the previous article. Still, I indulge in the



FIGURE 5.—CRUCIFIXION, BY JUSTUS VAN GHENT. PHILADELPHIA; JOHNSON COLLECTION.

hope that these articles, which form the first attempt to reconstruct the "oeuvre" of Justus van Ghent, will not be without profit to further research. We know very few individualities among the primitive artists of the Netherlands, while the number of anonymous works is enormous; therefore it seems to me good service to the history of art, to try to add new personalities—and the artistic personality of Justus was a very obscure one, up to the present moment.

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BERLIN, 1910.

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THE CHORAGIC MONUMENT OF NICIAS

THE study of the choragic monument of Nicias, of which most of the architectural remains, built into the central portion of the Beulé Gate before the Acropolis at Athens, were uncovered by E. Beulé¹ in 1852, actually begins with the analysis of the remains by Professor Dörpfeld in 1885.² Four years later he discovered a foundation for the building,³ and it then became possible to restore more than the façade alone.⁴ Quite recently the monument has been republished by Mr. F. Versakes,⁵ with the following conclusions: (1) The foundations identified by Dörpfeld are discarded, and the monument placed somewhere in the precinct of Dionysus; (2) to the members identified by Dörpfeld are added a piece of a Doric column shaft and a capital, also the central block of a tympanum, while, on the other hand, the *poros* triglyphs assigned by Dörpfeld to the monument are rejected and replaced by marble; (3) the choragic inscription of 320/19 is not contemporary with the epistyle on which it is cut, but is a later addition, while the monument itself really dates from the end of the fifth century, and was erected by the general Nicias (Plutarch, *Nicias*, 3). The present article, which is in part composed of notes made at intervals in the past two years with regard to the architectural members, is occasioned by the identification of the foundations of the monument.

I begin with the blocks on which rests the identification of the monument, the epistylia, three of which from the centre

¹ *L'Acropole d'Athènes*, 1853, I, 100-106.

² *Ath. Mitt.* X, 1885, pp. 219-230, pl. VII.

³ *Ath. Mitt.* XIV, 1889, pp. 63-66.

⁴ Plan and partial perspective in Jahn-Michaelis, *Arx Athenarum*³, 1901, tab. XXXII; plan and complete perspective in Luckenbach's *Akropolis von Athen*², 1905, pp. 11 and 49.

⁵ *Τὸ μνημεῖον τοῦ Νικίου*, 'Εφ. 'Αρχ. 1909, 221-238.

of the façade bear the dedicatory inscription.¹ Dörpfeld notes six blocks in which the end joints are cut through regulae and so were supported by columns, and seven in which the joint is at one side or the other of a regula, taking advantage of a continuous supporting wall below. We may likewise form two classes, according to the thickness of the epistylia; all those which Dörpfeld placed above open intercolumniations are 0.388 m. thick, and those which were set upon solid walls are

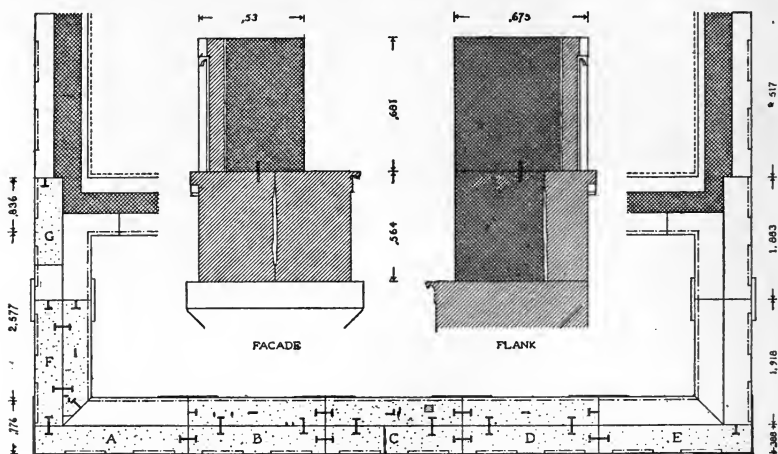


FIGURE 1. — PLAN AND SECTIONS OF EPISTYLE.

0.22 m. to 0.25 m. thick, with the exception of one, which is of the 0.388 m. type. Those which are 0.388 m. thick had marble antithemata, likewise 0.388 m. thick, four of which now remain, built into the topmost course of the Beulé Gate. Those epistylia which are 0.22 m. to 0.25 m. thick were probably made so from motives of economy, and must have been backed by *poros*; they could have been carried only on the walls of the cella, the ceiling of which would conceal the *poros* backing (Fig. 1).

¹ I.G. II, 1246:

NI · ΙΑΞΝΙΛΟΔΗΜΟΥΕΥ · ΕΤΑΙΩΝΑΝΕΘΗΚΕ
 ΝΙΚΗΞΑΣΧΟΡΗΓΩΝΚΕΚΡΟΡΙΔΙΡΑΙΔΩΝ
 ΓΑΝΤΑΛΕΩΝΞΙΚΥΩΝΙΟ · ΗΥΛΕΙΑΙΞΜΑΕΛΓΗΝΩΡ
 ΤΙΜΟΘΕΟΥΝΕ · · ΖΜΟΞΗΡΧΕ

Of the six preserved thick epistylia that spanned intercolumniations, Dörpfeld assigned five to the façade (three inscribed blocks, *B*, *C*, *D*, and two angle blocks, *A*, *E*, in Fig. 1) and one to the left flank, immediately adjoining the front corner.¹ The façade would thus seem to have been hexastyle, and this is confirmed by evidence from the geisa, as will be shown. On each flank, instead of the two columns restored by Dörpfeld, the present evidence calls for only one, that at the angle. Because the existing epistyle from the side return of the colonnade (*F*, identified by its having a sixth of a regula at one end,

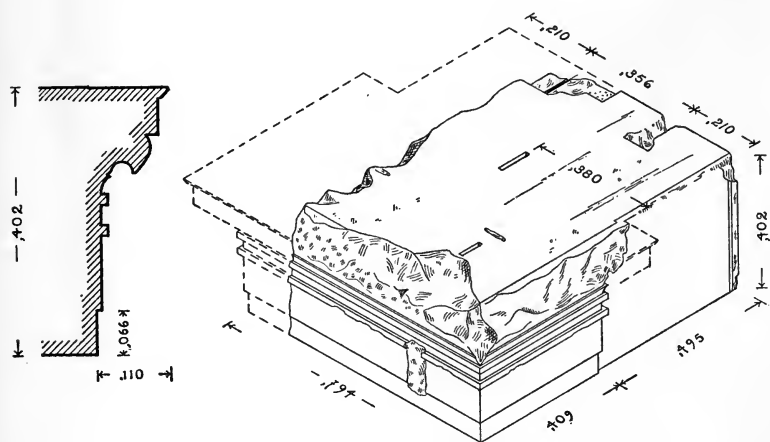


FIGURE 2. — ANTA CAPITAL.

the complement of the five-sixths cut on the end of the angle block) has at the other end a joint under the centre of a triglyph, it was inferred that this end did not rest on an anta, or advantage would have been taken of the opportunity to secure a longer bearing, a full triglyph width. This was the origin of the second open intercolumniation in Dörpfeld's restoration. Just inside the Beulé Gate, however, lies an anta capital, hitherto unidentified, from the Nicias monument (Fig. 2),² of a type re-


¹ *Ath. Mitt.* X, 1885, pl. VII; the block last mentioned is there lettered *K*.

² One side is chipped away; the other shows the return of the anta, 0.409 m. wide, nearly the 0.423 m. triglyph width given by the regulae of the epistyle of Nicias. Lewis hole, clamps, dowels, and pry cuttings, and the protecting lip at the edge of the vertical joint (a sign of incompleteness in the fourth century and later, corresponding to the *werkzoll* over the entire surface in the fifth century)

sembling those of the smaller order of the Propylaea, and exactly like those of the monument of Thrasyllus.¹ The dowel cuttings on the block are exactly right for the epistyle and its antithema, and, moreover, indicate a joint above the centre of the anta; that is, under the centre of a triglyph. In this building the opportunity for a longer bearing above the anta capital was not grasped, and the evidence for the second column on the flanks no longer exists. The single epistyle which, as was noted above, rested on a solid wall, but is shown by its thickness (0.388 m.) to have had a marble antithema, and therefore cannot have been on the cella wall, must be placed on the parastas at one side of the pronaos. In this position it would abut on the first epistyle (*F*) on the flank, if the missing end of the block were restored (*G* in Fig. 1); the preserved end is a metope space, and abutted on a regula at the end of one of the thin epistylia on the cella wall; a shift cutting which was at the middle of the back of this block *G* indicates that it must be restored as the shortest epistyle in the building

$$\left(\frac{T}{2} + M + T + M = 1.883 \text{ m. long}\right).$$

The arrangement of the thin epistylia will be considered later.

The four existing epistyle antithemata 0.388 m. wide can be assigned to their original positions, as shown in Figure 1, from the position of the clamps binding them to the epistyle facing. This course must have been continued across the front wall of the cella, but with thin blocks backed by *poros*, as on the side walls of the cella. The two jambs of the present doorway of the Beulé Gate are composed of these blocks, identified by their height (0.564 m., as in the epistylia), and by the fact that along their upper edge was a moulding — now hacked away — which, like that of the epistyle antithemata, was 0.110 m. high; they have  clamps and lewis holes, as should be expected.²

are exactly like those of the epistylia. The width of the block, as it may be restored from the spacing of the lewis and the clamps (Fig. 2), is correct for receiving the soffit of the epistyle of the Nicias monument, 0.776 (2 × 0.388) m. wide.

¹ Stuart and Revett, II, ch. IV, pl. IV.

² One end of each has been cut off, so that the present lengths are only 3.79 m.; but, judging from the positions of the lewis and clamp cuttings, the original lengths were probably two intercolumniations, 4.188 m.; though these

To the building of which the epistylia formed a part the geisa now built into the Beulé Gate unquestionably belong, as Dörpfeld has proved.¹

Eight of these geisa are in the gate, and I have seen ten other pieces. Three of these latter are different from all the others in having sloping tops and rafter cuttings (*b* in Fig. 3); upon these, therefore, must have rested a sloping roof.² All the others, with flat tops, show by this very contrast that the building was not hip-roofed, but that it had at

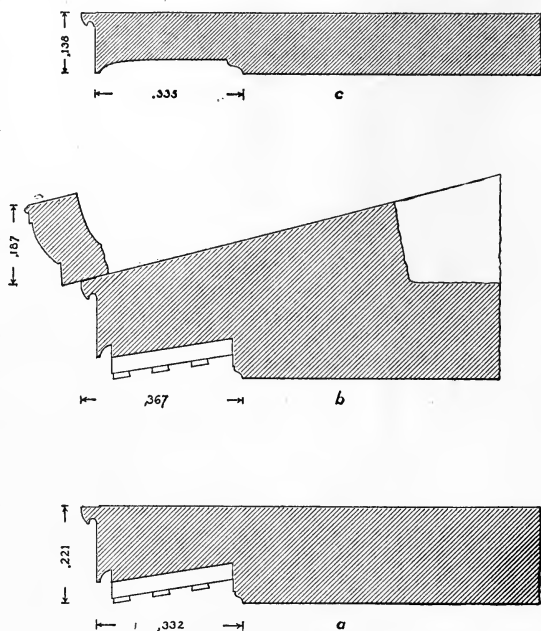


FIGURE 3. — GEISA OF THE MONUMENT OF NICIAS.

least one pediment, of which they formed the floor (*a* in Fig. 3). When the Nicias monument was dismantled, the joints between the ordinary geisa of the façade, disregarding the special angle geisa, were numbered A to Θ from left to

blocks are of the thinner variety, on account of their great length, the thickness is slightly increased, to 0.28 m.

¹ Material (Pentelic marble), the finish of exposed surfaces and of anathyroses, the use of the protective lip at the joints, and the clamps and dowels are the same in both; and the dimensions are perfectly in accord, the mutules being equal to the regulae (0.423 m.) and the length of the normal blocks (1.047 m.) just half the intercolumniation given by the epistylia. Beulé alone denied this uniformity (*L'Acropole*, I, p. 101).

² The tops of the geisa here follow the slope of the roof, and on them rested tiles of ordinary thickness (compare the temples at Aegina and Bassae); more frequently the tops of the geisa were flat and the roof slope taken up by special eaves tiles, as in the Parthenon, Propylaea, temples at Rhamnus and Sunium, etc.; in the Erechtheum there was a peculiar system by which the angle of the roof slope was divided between the geisa and the eaves tiles.

between the last and the north tower there remained a space of only 0.53 m. Here the builders were economical of labor, and instead of cutting down one of the rejected blocks, they took a second narrow central block, knocked off a front corner by laying on it a block of wood and giving a few strokes with the hammer, and set the remainder in the gap; the result was the conjunction of two *viae*, which it had been the aim of the designer of the gate to avoid by numbering.¹ This second central block, with a mutule between two *viae*, and a horizontal top, unnumbered, could have been taken only from the opposite end of the building. Both ends of the monument, therefore, had gables; it was not merely backed up against the rock, as had been supposed. To the rear gable must belong all the unnumbered ordinary geisa with flat tops, of which we have, in addition to the two pieces of the central block, four more fragments, two from the left side and two from the right, as shown in the plan, Figure 4. The hawksbeak moulding of this rear gable was peculiarly treated in block form (Fig. 5; the broken lines give the normal profile), as appears in the only two pieces in which the moulding has not been entirely broken off.

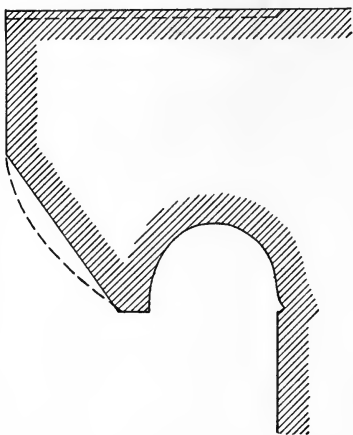


FIGURE 5.—BLOCK MOULDING OF REAR GEISON. FULL SIZE.

Between the lower epistylia and the geisa now built into the Beulé Gate is a triglyph frieze, consisting of *poros* triglyph blocks with marble metope slabs. Beulé supposed that the triglyphs were taken from an archaic *poros* building, which would imply that at the time the Nicias monument was dismantled, archaic triglyphs of exactly the right width were at hand, while those of the Nicias monument were neglected. For the widths of triglyphs and metopes exactly fit the mutules of

¹ The very corner which was thus knocked off now lies inside the Beulé Gate (cf. Fig. 4).

the geisa and the regulae of the epistylia, and Dörpfeld, on the grounds of dimensions, workmanship, and spacing of dowels, assigned the triglyph blocks correctly to the Nicias monument. The reason for the use of *poros* triglyphs was, as he explained,¹ a saving of material in the only portion of the façade which was to be entirely covered with opaque color. In his recent article, Versakes denies that these triglyphs belong to the monument, and returns to the old theory of Beulé that they are archaic.² As examples of the triglyphs of the Nicias monument he proposes some poor Roman marble fragments now in the Ascle-

¹ *Ath. Mitt.* X, 1885, pp. 228-229.

² *Εφ. Ἀρχ.* 1909, pp. 231-234. His reasons are:

(1) Because the saving of material would be insignificant with only this part of the building of *poros*. But compare, for instance, the *poros* antithemata of the wall epistylia.

(2) Because the *poros* triglyphs are too thick to rest on the epistyle of the Nicias monument (being 0.675 m. from front to back, while the epistyle was 0.776 m.), and leave sufficient room for antithemata of any sort of stone. The triglyphs now in the gate, which Versakes measures, are, however, from the sides of the building (Fig. 1), and those from the façade, of which two lie inside the gate and two toward the Areopagus, were only 0.52 m. to 0.53 m. thick (see Dörpfeld's drawing, *Ath. Mitt.* X, 1885, pl. VII).

(3) Because the *poros* triglyphs are too high in proportion to the epistyle of the Nicias monument. To show that the proportions of the frieze of the Nicias monument are suitable for its date, I append a comparative table of the widths of metopes and heights of friezes, both in terms of the epistyle heights, showing also the development of the metope rectangle.

	METOPÉ WIDTH	FRIEZE HEIGHT
Corinth, Apollo	0.812-0.819 m.	—
Aegina	0.895-0.952 m.	0.976 m.
Olympia, Zeus	0.871 m.	0.977 m.
Sunium	0.887 m.	0.989 m.
Theseum	0.926 m.	0.988 m.
Parthenon	0.942 m.	0.998 m.
Propylaea (Athens)	0.964 m.	1.016 m.
Bassae	0.973 m.	1.015 m.
Rhamnus	1.000 m.	1.000 m.
Tegea	1.056 m.	1.036 m.
Epidaurus, Asclepius	1.128 m.	1.123 m.
Epidaurus, Tholos	1.086 m.	1.208 m.
Nicias monument	1.107 m.	1.204 m.
Nemea	1.107 m.	1.123 m.

pieum and the theatre,¹ due, in his opinion, to a late restoration of the monument. These triglyphs were nearly of the right width;² the corresponding geisa, however, give the metope width as 0.60 m., instead of the 0.624 m. of the Nicias monument. To show that the *poros* triglyphs must be associated with the marble epistylia and geisa, I need only emphasize Dörpfeld's points: the technique is identical, including the use of the thin lewis hole, which is unknown in early *poros* architecture and is derived from work in marble; the dimensions and proportions agree; the dowels on the tops of the triglyphs are for geisa which normally have two mutules cut on a single block;³ and the dowel and pry holes on the tops of the epistylia are for triglyph blocks which have joints behind the centres of the metopes, an impossible condition unless the metopes were loose marble slabs, as in this case. Some of the marble metopes were inserted in the frieze of the gate; others were used as material for the rebuilding of the towers of the gate; and fragments lie scattered along the south slope of the Acropolis.

On the tops of the geisa of the pediment floors appear dowel and pry holes for tympanum blocks and their antithemata (Fig. 4). In the antithemata there was no central block, but a joint exactly in the centre;⁴ and geison Θ-H shows that above it the joints of tympanum facing slabs and of antithemata practically coincided. It seemed at first probable, therefore, that this coincidence occurred throughout, as in the Erechtheum. Probing in the joints of the attic of the gate, however, disclosed what appears to be a dowel cutting for the tympanum face, and therefore a joint, about 0.83 m. from the original centre of the façade. Because the central slab was laid first,⁵ this dowel must be included in the length of the

¹ 'Εφ. 'Αρχ. 1909, p. 231, Fig. 11 a. Restored with a height 0.64 m. to suit the taste of the fifth century.

² Now broken into fragments, but restored as 0.42 m. wide.

³ Except on one triglyph which was prepared for the narrow geison in the centre of the façade; this triglyph now lies below the gate toward the Areopagus.

⁴ Note the central pry-hole on geison Ε-Δ, and dowel and pry holes in Ζ-Ε and Δ-Γ for the outer ends of blocks which abutted on each other in the middle of the façade.

⁵ This is shown by the fact that all the tympanum blocks were pried and dowelled at their ends farther from the centre of the façade; the joint lines are

central slab, which was therefore approximately $2 \times 0.83 = 1.66$ m. long.

With this favorable evidence, we may accept the identification by Versakes¹ of a central tympanum slab 1.637 m. long, now lying near the precinct of Dionysus,² as from the monument of Nicias. Its workmanship and details of fastenings agree perfectly with those of the other members. With this must be associated another slab from the tympanum, now lying below the Beulé Gate; a difference of 4 mm. in the height at the first joint at the right of the centre shows that it did not abut

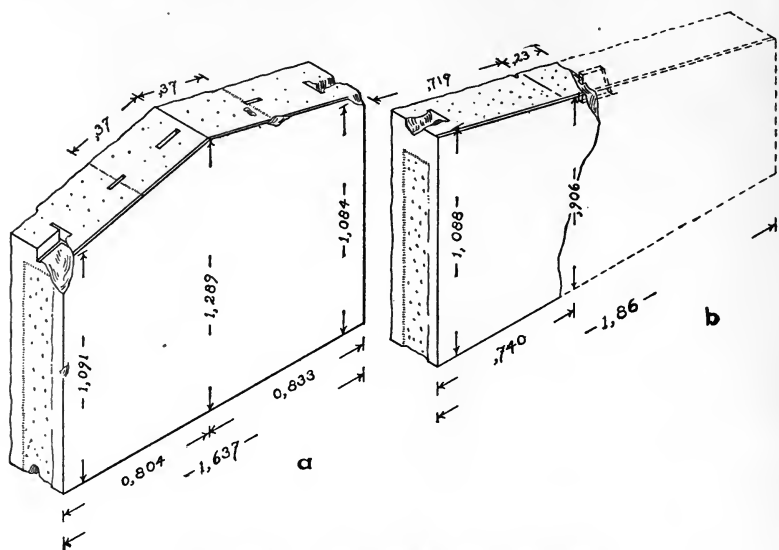


FIGURE 6. — SLABS FROM THE TYMPANUM.

on the extant central slab, so that it must belong to the other pediment of the same building (Fig. 6).³ In both of these slabs the slopes are 1 in 4.065, slightly steeper than in the Parthenon (1:4.138) or the Propylaea (1:4.167). This agrees therefore always at the outer ends of the dowel holes, toward the pry cuttings (Fig. 4).

¹ *Eph. Arch.* 1909, p. 223, Fig. 7.

² Found near the east end of the stoa of Eumenes.

³ This second slab (Fig. 6 *b*) is now only 0.92 m. long, but if we restore its length by assuming that the lewis hole was approximately at its centre, it will fill the 1.84 m. remaining between the central slab and the joint indicated on geison Θ -H. The elevation of the tympanum jointing is shown in Figure 10.

with the slope of the tops of the flank geisa, as well as they can be measured. The height of the central slab is 1.289 m.; at the given slope, the base of the tympanum would then be 10.480 m.; the width of the façade across the epistyle was 10.894 m., and along the crowning moulding of the horizontal geison, 11.634 m., so that at either end of the tympanum there remained 0.577 m. of the horizontal geison to receive the bevelled ends of the raking geisa.

If 0.577 m. be the length of the bed of the raking geison on the horizontal geison, the height of the raking geison, the given slope being 1 in 4.065, will be 0.138 m. A fragment of raking geison on the south slope of the Acropolis (for knowledge of which I am indebted to Mr. G. P. Stevens, who suggested that it might belong to the monument of Nicias) has exactly this height, 0.138 m. (see Fig. 3 *c*); and the projection of its face beyond the bottom of the bed moulding (0.335 m.) associates it with the Nicias geisa (projection 0.332 m.). The total projection, including the crowning moulding, was evidently the same in both cases, 0.367 m.; for the hawk'sbeak of the raking geison, now partially broken away, was slightly smaller than that of the horizontal geison (0.033 m. instead of 0.040 m. high). The most remarkable feature of this raking geison is its disproportionate thinness, its height being only about five-eighths of that of the horizontal geison. It is unknown whether the lower end blocks of the raking geisa were cut to a feather edge, or had the extreme end cut on the horizontal geison, or were combined with the sima and acroterion base, as in the Propylaea. At the apex of the pediment the geison was cut as a saddle, the dimensions of which are given by a bed cutting on the central tympanum slab (Fig. 6). The tympanum slabs likewise give the length of a typical raking geison as 1.19 m.

Of the sima of the Nicias monument nothing has as yet been identified. It is probable, however, that we may assign to the building a small piece of Greek eaves sima, found near the stoa of Eumenes (Fig. 3 *b*). It is an imitation of the Periclean profile, similar to, but much later than, the sima of the temple of Athena Nike. Its bed is designed for flank geisa with sloping tops. And if we compare the cornice of this monument with that of its prototype, the central building of the Propylaea,

which had the geison (to top of hawksbeak) 0.393 m. high and sima 0.331 m. high, we find that in the monument of Nicias, with a geison 0.221 m. high, the sima should be 0.186 m., and ours is 0.187 m.

A fragment of an acroterion base from the apex of a pediment, now lying inside the Beulé Gate, seems from its scale and workmanship, and because it has a joint at the apex above a saddle-shaped geison block, to belong to the Nicias monument.¹ As restored from this block, the acroterion base would be only 0.880 m. wide, too small for a choragic tripod; and it carries

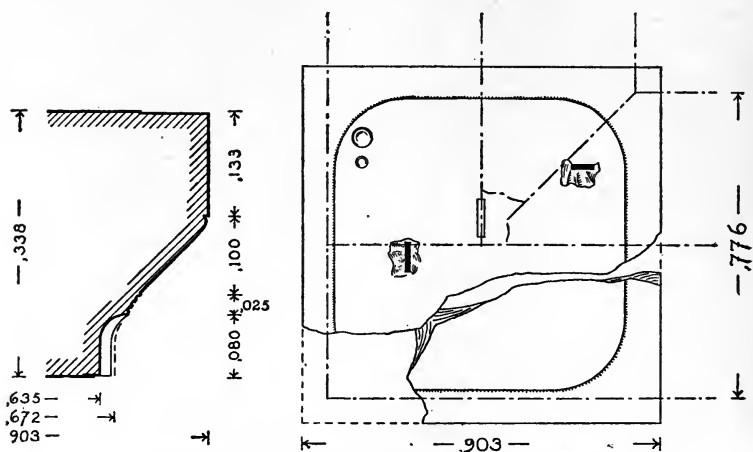


FIGURE 7.—CAPITAL OF ANGLE COLUMN.

no traces of any attachments. The choragic tripod, about 2 m. high, would be too unwieldy to crown a pediment of such small scale, and was almost certainly placed in the cella.

The most important addition of material made by Versakes is a Doric capital now east of the Parthenon, together with the lower drum of a shaft now in the theatre. The two agree with each other in technique and scale, and are of the right scale for the Nicias monument, though it is strange that one of the capitals should have been transported to the top of the Acropolis. A capital exactly like that identified by Versakes is shown by Stuart and Revett,² who saw it in a ruined church in the Turk-

¹ The slope of its bed, practically 1 in 4 as nearly as can be measured, is slightly steeper than usual and would well fit the monument.

² Vol. IV, ch. V, pl. VIII, 6.

ish cemetery below the west end of the Acropolis, a region full of remains of the monument of Nicias. I measure the lower diameter of the column as 0.844 m. (twice the triglyph width), and the upper diameter (on the capital) as 0.672 m., four-fifths of the lower. The height of the capital (0.338 m.) is the same as that of the anta capital (0.336 m.). The technique appears to be that of the fourth century: both capital and drum have lewis holes, and both were fastened to the other drums by small round dowels 0.05 m. in diameter and 0.09 m. high (0.045 m. in each stone); the top of the abacus has a square relieving surface with rounded corners. The capital is shown in photograph and profile by Versakes.¹ For the sake of completeness I add a plan of the abacus (Fig. 7), showing how it will fit the epistyle; it is an angle capital, and its dowels show that it supported an epistyle in two beams, jointed at the angle in a manner that coincides with the evidence from the epistylia themselves (Fig. 1).

The height of the columns cannot be obtained with accuracy, though the error can be reduced to a minimum. From a comparative table of the ratios of intercolumniation to height of column and entablature together, and of the entablature to the column height,² it appears that the height of the order should be more than three intercolumniations (6.282 m.), but considerably less than what the Nemean ratio would give (7.161 m.). Subtracting the entablature (1.464 m.), the columns should be between 4.818 and 5.697 m. in height, on an average 5.25 m. The ratio between entablature and column heights should

¹ *Eφ. 'Αρχ.* 1909, p. 232 (Fig. 12), p. 236 (Fig. 15).

²

	INTERCOL. : ORDER	ENTAB. : COLUMN
Aegina	1 : 2.85	1 : 2.62
Olympia, Zeus	1 : 2.79	1 : 2.55
Theseum	1 : 2.94	1 : 2.86
Parthenon	1 : 3.19	1 : 2.43
Bassae	1 : 2.85	1 : 2.97
Propylaea : east hexastyle . .	1 : 3.11	1 : 3.15
west hexastyle . .	1 : 3.18	1 : 3.24
west wings	1 : 3.10	1 : 3.05
Nemea	1 : 3.42	1 : 4.17

be greater than any in the Propylaea; 1:3.64, an average between the Propylaea and Nemea, would give 5.27 m. The anta capital gives the regular height of courses as 0.402 m.; the orthostates were probably, as usual, a little more than twice as high, or about 0.90 m. These orthostates and eleven ordinary courses would make up a height of 5.32 m., which we may definitely assume as the height of the columns. It is interesting to note that, if we subtract the height of the capital (0.338 m.) from this, the height of the shaft proper (*ca.* 4.98 m.) is exactly three times the height of the lowest drum identified by Versakes.¹

As for the site of the choragic monument of Nicias, the earliest and most obvious suggestion was that it was on the Street of the Tripods, or near the temple of Dionysus.² Dörpfeld at first suggested³ the spot just below the Nike bastion, which Lolling afterward identified as the heroum of Aegeus;⁴ Dörpfeld's final opinion was that the lofty breccia foundations of some structure which was demolished to make way for the odeum of Herodes Atticus (immediately after 160 A.D.), and some portions of which remain just north of the odeum, had formerly supported the monument.⁵ This has been universally accepted, although there has been an undercurrent of suggestion that the monument of Nicias should be identified with that of the elder Nicias, which Plutarch saw down near the theatre—a suggestion which has always been rejected even by those who proposed it, Dörpfeld, Reisch, and Furtwängler.⁶ Furtwängler's abandoned proposal was adopted and affirmed by Versakes;⁷ and for many reasons this suggestion seemed to me to

¹ The top is now broken away ('Εφ. 'Αρχ. 1909, p. 227, Fig. 9); but from the bed to the bottom of a dowel hole at the present top is 1.60 m., and the dowel hole was 0.05 m. deep, so that we may restore the original height as 1.65 m. (see Fig. 10).

² Beulé, *L'Acropole*, 1853, I, p. 103; Rangabé, *Ant. hellén.* II, 1855, p. 705.

³ *Ath. Mitt.* X, 1885, pp. 225–226.

⁴ *Ath. Mitt.* XI, 1886, pp. 322–323; XIV, 1889, p. 63.

⁵ *Ath. Mitt.* XIV, 1889, pp. 63–66.

⁶ Dörpfeld, *Ath. Mitt.* X, 1885, p. 226; Reisch, *Griech. Weihgeschenke*, 1890, p. 100, note 2; Furtwängler, *Sitzungsb. d. k. b. Akad. München*, 1901, p. 414, note 1, but with acceptance of Dörpfeld's theory, p. 415, note 2.

⁷ 'Εφ. 'Αρχ. 1909, p. 237.

have elements of probability, especially when it appeared that an unidentified foundation suited perfectly, in date, dimensions, and position. At the time of writing his article, Versakes had not yet determined the foundations. He saw that there were difficulties connected with the site proposed by Dörpfeld, and that a site near the theatre was more probable, especially because here lay some of the larger fragments (column shaft and central tympanum slab) which he ascribed to the monument. Versakes has since, and independently, come to the conclusion that the foundation herein described is that of the monument of Nicias. Professor Dörpfeld's identification of the foundations which he thought were those of this monument rested on their material (breccia as in buildings of the fourth century and later) and their plan: the latter would give a building with a façade (*Fassadenbau*), without a rear wall, backed up against the rock, such as was the contemporary monument of Thrasyllus.¹ Apart from material and plan, there is, however, in the foundations themselves no evidence in favor of the identification; they give neither the width nor the length of the building, and the thickness of the walls (1.35 m.), advanced as evidence² that they bore columns and steps, is insufficient,³ and is probably due merely to the great weight of the foundations themselves. At their present level (probably almost the ancient level) these foundations require the omission of the rear wall; and there seems to be no possibility of a rear wall on the top of the rock behind, even if the foundations could be raised to the abnormal height then required;⁴ whereas the architectural fragments (geisa and tympana) show that the Nicias monument was a free-standing building, with both ends exposed. The site, so far west of the

¹ Dörpfeld, *Ath. Mitt.* XIV, 1889, p. 64. Rear walls are restored, however, by Jahn-Michaelis, *Arch. Athenarum*³, 1901, Tab. VII; Luckenbach, *Akropolis von Athen*², 1905, p. 11; and Judeich, *Topographie von Athen*, 1905, plan II.

² *Ath. Mitt.* XIV, 1889, p. 65.

³ The similar foundations of the second temple of Dionysus Eleuthereus are 1.45 m. thick for the walls, and 1.90 m. thick for the portico (Dörpfeld-Reisch, *Griech. Theater*, p. 20).

⁴ The wing walls (cf. 'Εφ. 'Αρχ. 1909, p. 226, Fig. 8) afford no argument one way or another, as they would no more be an integral part of the building than the wing walls of the greater Propylaea at Eleusis (*Antiq. of Attica*, ch. II, pls. 1 and 2).

theatre, would be unique for a choragic monument;¹ and this would require two separate Nicias monuments, that of 320/19 and that of the general Nicias (before 415), which is improbable, as will be shown. This site, too, would require the date 160 A.D. for the destruction of the monument and the building of the Beulé Gate, which again seems improbable.

The plan of the superstructure of the Nicias monument would seem to require foundations of the T-shape that appears in other prostyle buildings of the fourth century and the end of the fifth, such as the second temple of Dionysus Eleuthereus at Athens, the temples of Despoina at Lycosura and of the Cabiri in Samothrace, and the third temple of Athena Pronaia at Delphi. For it is probable that the steps of the façade would be carried around the sides of the building only as far as the open intercolumniation extended, and would then return against the side walls, their lines being continued as a socle of slight projection. The width of such a foundation should be, on the façade, the length of the five epistylia, 10.893 m., and, in addition, the projections of the columns and steps.

South of the east end of the stoa of Eumenes are the foundations of a building, hitherto unidentified.² At the east, one to three courses of breccia remained above ground, and above these one course of Acropolis rock was finished as if intended to be visible; at the north this wall turns westward, forming the north wall, the top of which had been laid bare for 10 m.; the southeast corner was broken away, but a long stretch of the south face of the south wall had been excavated to a depth of one to two courses. The date of the foundation is clearly earlier than that of the stoa of Eumenes; for it is at a much lower level, and it is evident that the stoa was built with

¹ The fragment of the dedication of Chares, of 344/3 (*I.G.* II, 1240), used as a well cover N.E. of Dörpfeld's foundation (shown on Middleton's plan, *J.H.S. suppl.* III, pl. 18, No. 37), had evidently been transported from a distance; Miss Bieber's suggestion (*Ath. Mitt.* XXXV, 1910, p. 15), that a foundation west of the Asclepieum (No. 29 on Middleton's plan, *l.c.*) supported a choragic monument, is impossible.

² Köhler supposed that it might be a temple, *Ath. Mitt.* III, 1878, p. 153; but the façade was toward the west. It appears on the plans of Mitsakes, *Πρακτικά*, 1878, pl.; Loviot, *B.C.H.* II, 1878, pl. XXIII (entirely wrong); Ziller, *Ath. Mitt.* III, 1878, pl. VII (the best); Middleton, *J.H.S. suppl.* III, No. XXIII; and Judeich, *Topographie von Athen*, plan II.

regard to it. On the other hand, the use of breccia in the foundations would seem to make it not earlier than the fourth century, or at most the end of the fifth, so that its date would be suitable for Nicias (320/19 B.C.). The width of the building, from outside to outside of the foundations, is 11.79 m.; but the west end of the south wall projects southward 0.71 m. for a length of 4.10 m., giving, if we make the north side symmetrical, the desirable T-shaped plan, with a façade width of 13.21 m. Though no traces of the west façade were visible, it seemed that the westernmost stone of the south wall was the south-



FIGURE 8. — FOUNDATIONS OF THE MONUMENT OF NICIAS.

west corner; for while all the other blocks are about 0.70×1.40 m. in plan, laid regularly as headers and stretchers, this block is 1.00×1.40 m., and though it had been thrown slightly out of place by earthquakes (Fig. 8, in centre), it was clear that its end was exactly above the west end of the course below, as if the wall continued no farther. The length of this projecting ear is just that required for the single intercolumniation on the flank of the monument, and the total length, 16.68 m., is such as to give exactly six epistylia of the arrangement required on the flank of the monument (in addition to the short

returns of those on the ends), and allow the same excess of foundation at the ends of the building as we should have on its sides.¹

Moreover, the architectural remains of the monument of Nicias that were not found at the Beulé Gate lie scattered about this foundation: the column shaft, the central tympanum block (which was found much nearer the foundation than its present position), two horizontal geisa, etc.

The identification of the site was certain even before excavations began.² Trial trenches were made on April 15 and 16, and work at intervals between April 29 and May 25, 1910, completely cleared the foundations. The southwest corner appeared in perfect condition, with three courses of breccia ending one above another, set in a trench cut in the bed rock, so that the wall could never have gone farther. Another small

¹ Width of façade :	foundations	.	.	.	13.21	m.
	epistyle	.	.	.	10.893	m.
	excess	.	.	.	2.32	m.
	excess each side	.	.	.	1.16	m.
Width of body :	foundations	.	.	.	11.79	m.
	epistyle	.	.	.	10.893	m.
	excess	.	.	.	0.90	m.
	excess each side	.	.	.	0.45	m.
Composition of flank epistyle :						
(1)	return from front, $\frac{3}{8} T$	.	.	.	0.388	m.
(2)	$\frac{1}{2} T + M + T + M + \frac{1}{2} T$ (stone F.)	.	.	.	1.918	m.
(3)	$\frac{1}{2} T + M + T + M$ (stone G.)	.	.	.	1.883	m.
(4)	$T + M + T + M + T$	.	.	.	2.517	m.
(5)	$M + T + M + T + M$	.	.	.	2.718	m.
	} narrow epistylia					
(6)	$T + M + T + M + T$	.	.	.	2.517	m.
(7)	$M + T + M + T + M$	.	.	.	2.718	m.
(8)	return from rear, T	.	.	.	0.423	m.
	total length of flank	.	.	.	15.082	m.
Length of flank :	foundations	.	.	.	16.68	m.
	epistyle	.	.	.	15.082	m.
	excess	.	.	.	1.60	m.
	excess on front (= sides of façade)	.	.	.	1.16	m.
	excess at rear (= sides of body)	.	.	.	0.46	m.

² Permission to excavate the monument was obtained from Mr. Panagiotopoulos, Minister of Public Instruction, through the kindness of Mr. Byzantinos. The prosecution of the work, which was carried on at the expense of the American School of Classical Studies, was greatly facilitated by Mr. Skias.

pit uncovered the northwest angle; only the single angle stone here remained, and further cleaning revealed only the rock-hewn beds for the walls. The excavations yielded one new fact of importance for the plan, the position of the cross wall. The present state of the foundations appears in Figure 9; where actual walls remained, the depth of earth removed was only 10 to 20 cm. Lying on the cross wall were a piece of the

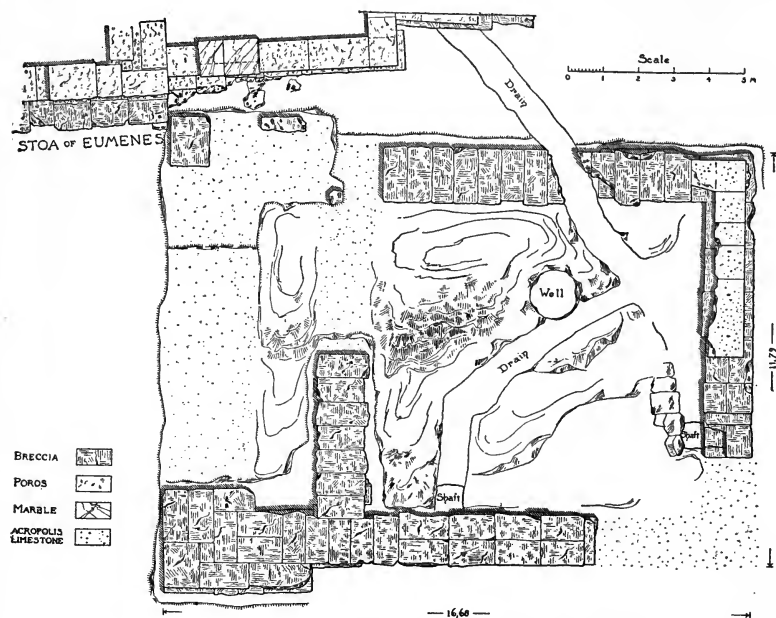


FIGURE 9. — PLAN OF FOUNDATIONS, PRESENT STATE.

hawksbeak moulding from the epistyle antithema of the west portico of the Nicias monument, and another piece which crowned the horizontal geison of the west façade. The fragments of pottery were non-committal, except that the few which were in the earth used as filling when the foundations were laid gave a date at any rate no earlier than the fifth century B.C.

The restoration of the plan of the building is shown in Figure 11, in combination with the east end of the stoa of Eumenes. The only uncertain elements are the thickness of the cella walls and the size of the doorway. The position of the foundations of the cross wall is such as to indicate that the inner face of the

wall was aligned with the end of epistyle *G* (Fig. 1); and if the wall is centred on its foundation, its thickness will be as shown in Figure 1, 0.836 m., slightly greater than that of the parastades.

The history of the monument of Nicias was apparently as follows: Nicias, the Athenian general, the son of Niceratus, and his brothers, Eucrates and Diognetus, dedicated before 415 B.C., as the results of their choragic victories, a series of tripods near the temple of Dionysus Eleuthereus, as we are told by their contemporary Plato.¹ These are the tripods mentioned by Plutarch,² who explains their number by the fact that Nicias won many victories. Plutarch adds, however, what Plato does not mention, that lying below (or near or beyond) this row of tripods³ was a choragic *νεώς*, also dedicated by Nicias.⁴ The silence of Plato, the contemporary of Nicias the son of Niceratus, seems significant, and such a monument, if erected by the elder Nicias before 415 B.C., would stand isolated, preceding by a century all others of its type.⁵

¹ Plato, *Gorgias*, 472 A:

Νικίας ὁ Νικηράτου καὶ οἱ ἀδελφοὶ μετ' αὐτοῦ, ὧν οἱ τρίποδες οἱ ἐφεξῆς ἐστῶτες εἰσιν ἐν τῷ Διονυσίῳ.

² Plutarch, *Nicias*, 3:

εἰστῆκει δὲ καὶ τῶν ἀναθημάτων αὐτοῦ καθ' ἡμᾶς τὸ τε Παλλάδιον ἐν ἀκροπόλει, τὴν χρύσωσιν ἀποβεβληκός, καὶ ὁ τοῖς χορηγικοῖς τρίποσιν ὑποκείμενος ἐν Διονύσου νεώς· ἐνίκησε γὰρ πολλάκις χορηγῆσας, ἐλείφθη δ' οὐδέποτε.

³ *ὑποκείμενος* could hardly in this case mean lying directly below the tripods in the sense that they were upon its roof, as in the old interpretations; Stuart and Revett, I, p. 30; cf. Dörpfeld, *Griech. Theater*, p. 22. Reisch (*Griech. Weihgeschenke*, p. 100) prefers to translate it "designed for" the tripods, which seems rather forced.

⁴ Against the identification of this *νεώς* with the second cult temple of Dionysus Eleuthereus (Reisch, *Griech. Weihgeschenke*, p. 100; retracted by him, *Eranos Vindobonensis*, 1893, p. 2; but supported by Dörpfeld, *Griech. Theater*, 1896, p. 22) the objections of Furtwängler (*Sitzungsb. d. k. b. Akad. München*, 1901, p. 414) still hold good. (1) Just as the Παλλάδιον of Nicias was one of many on the Acropolis, so the *νεώς* of Nicias was one of many in the precinct of Dionysus, and that it was a choragic monument is shown by Plutarch's ἐνίκησε γὰρ κτλ. (2) If Plutarch had intended to refer to the temple of Dionysus, he would have said ὁ νεώς τοῦ Διονύσου and not ὁ ἐν Διονύσου νεώς. (3) The cult temple seems too important to be the dedication of a private individual at this early period.

⁵ It would have been erected at a time when the accepted form of choragic monument was the low-stepped base, on which was set the tripod (Reisch,

It seems easier to believe that it was the younger Nicias, the son of Nicodemus, who erected the choragic *νεῶς* near the tripods as the result of his victory of 320/19 B.C., and that Plutarch, seeing the tripods of Nicias I and the monument of

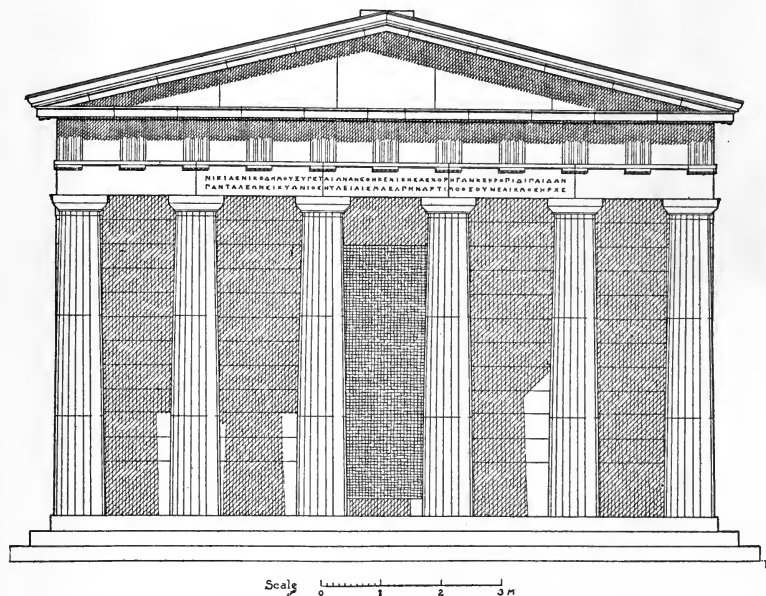


FIGURE 10. — MONUMENT OF NICIAS; WEST FAÇADE, RESTORED.

Nicias II side by side, assumed that all were the offerings of one man, probably without stopping to read inscriptions.¹

At any rate, ἐν Διονύσου² lie the foundations of the monument of the younger Nicias, erected immediately after 320/19 B.C.,³ with its back to the theatre and facing probably on an

Griech. Weihgeschenke, p. 68, Figs. 1-2, pp. 87-88). It is noticeable that the choragic dedication of Aristocrates, mentioned in the same sentence with the tripods of Nicias (*Gorgias*, 472 A) was of similar character, but with a round podium, such as was usual in monuments in the Pythium. This podium has been found (*I.G.* I, 422; cf. Reisch, *l.c.* pp. 81-83).

¹ Plato, it will be remembered, mentions also the brothers of the general Nicias as dedicators of the tripods, and these surely bore inscriptions to that effect.

² Actually backed against the wall of the Dionysium.

³ It is the opinion of Mr. Versakes, that the monument must be dated a century earlier, because (1) its technique is better and earlier than certain late stones in the Asclepieum (which he dates too early); (2) Hymettus marble,

open area bounded on the north by an old polygonal wall dating probably from the time of Pisistratus.¹ At the back of the monument seems to have been a breccia terrace wall (*B-B*, two stones only are now visible), probably of the date of the theatre and earlier than the monument. This wall *B-B* seems to have abutted on the old wall *A-A* on the north, and these may be the supporting walls of a winding ascent which met the upper road passing through the diazoma of the theatre.

To replace the old polygonal terrace wall Eumenes II (197–159 B.C.) built west of the theatre a great stoa, 163 m. long. The Nicias monument determined its position; the outer foundation line of the east end wall of the open portico is only 2 cm. from the foundation of the monument, and enclosing the north-west corner of the monument are the walls of the annex that contained the staircase leading to the second story of the stoa. The use of a solid wall where the stoa is obstructed by the Nicias monument is paralleled by the stoa behind the theatre² and by the stoa of Asclepius. Eumenes built on a higher level than the monument of Nicias; but steps of Hymettus marble, the lowest of which is still in place (Fig. 9), gave direct access from the pronaos of the monument to the stair-hall of the stoa.³

proper for the fourth century and used by Lysicrates and Thrasyllus, does not appear here (the evidence is not forthcoming); (3) the profile of the capital is earlier than that of the late capital in the Asclepieum, which Versakes believes, however, to be an exact copy of an original of the beginning of the fourth century; (4) Plutarch ascribes a choragic monument in this position to the elder Nicias (which I believe to be a mistake on Plutarch's part). This form of choragic monument would be unique if of the last quarter of the fifth century, as I have noted above (p. 478, note 5); and it suits the increase in ostentation and display of private wealth by the choregi after the impulse given by the completion of the theatre by Lycurgus about 340 B.C. As a development of his theory, Versakes believes that the inscription on the epistyle must be interpreted as a later addition, on the analogy of *I.G.* III, 68 b (p. 482); and *Niklas Nikodḗmon Eurteaiṓn* is made a descendant of *Niklas Nikḗrator Kyḗantridēs*, on the analogy of Thrasyllus and Thrasycles (a manifest impossibility; cf. Kirchner, *Prosopographia Attica*, 10808 and 10816).

¹ Shown on Figure 11, *A-A*. Other stones of this wall, not quite in their original places, have been re-used in foundations in the stair-hall of the stoa of Eumenes.

² Dörpfeld, *Griech. Theater*, pl. II.

³ These five steps led down to a level 1.275 m. below the stylobate of the stoa of Eumenes; this lower level was probably that of the stylobate of the monument of Nicias. The top of the course of Acropolis rock, now the uppermost

East of the stair-hall the polygonal terrace wall was replaced by one of ashlar (*C*), parallel to the Nicias monument and protecting its north flank; this was carried eastward as far as wall

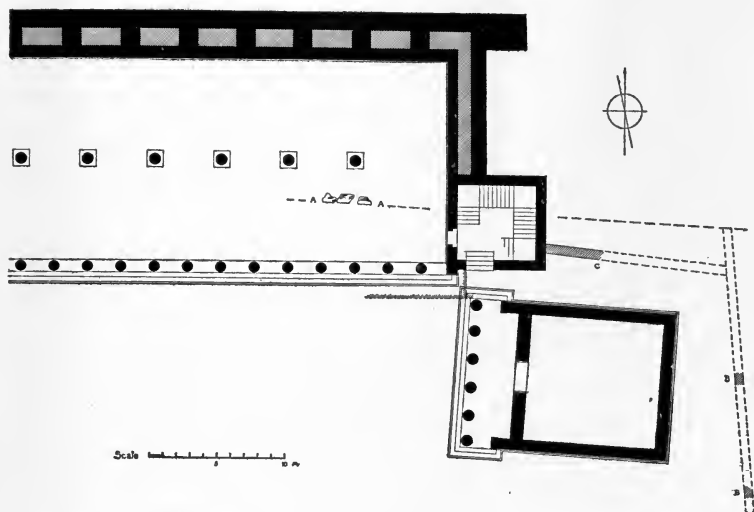


FIGURE 11.—MONUMENT OF NICIAS AND STOA OF EUMENES, RESTORED.

B-B. The former approach above walls *B-B* and *A-A* was now disused; the stoa of Eumenes made it impassable.

We have no direct evidence for the date of the destruction of the Nicias monument. Dörpfeld dated it 161 A.D., because he regarded the foundation partly on the site of the odeum of Herodes Atticus as the foundation of the monument of Nicias; but the construction (or reconstruction) of the Beulé Gate, an immediate result of the destruction of the monument, seems of too careless and ignorant workmanship to be contemporaneous with the monument.

The foundation of Nicias, is 0.955 m. lower still; it did not support the marble steps directly, but probably a *poros* euthynteria, for it shows pry-holes, but no dowels. Supposing the three steps of the monument of Nicias to be 0.75 m. high, which would suit the proportions, a euthynteria 0.205 m. high would just bring the stylobate up to the level of the bottom of the steps from the stoa of Eumenes. A filling of earth and a pavement probably now connected the bottom of the flight of steps and the stylobate of Nicias. How the change of ground level here was managed is unknown; the suggestion of a slight retaining wall (Fig. 11) is derived from an analogous case at the south end of the stoa of Attalus (Πρακτικά, 1899, pl. II; Judeich, *Topographie von Athen*, p. 316).

rary with the odeum of Herodes Atticus, the Telesterion, and the greater propylaea at Eleusis, etc. And we may, perhaps, arrive at a more satisfactory conclusion from the probability that the close connection of the monument with the stoa of Eumenes may have led to a common fate. A trench for a late drain, cut in bed rock, destroyed part of the foundations of both the stair-hall and the monument. Columns of the stoa were found built into reënforcements of the city wall farther south, repairs supposed to be of late Roman or even mediaeval times.¹ But other portions of the stoa of Eumenes — namely, the geisa of the second story — were used by Phaedrus for his reconstruction of the stage of the theatre of Dionysus.² The date of Phaedrus, son of Zoilus, is difficult to determine; from the inscription cut on one of these very geisa (*I.G.* III, 239), he is usually assumed to have been archon, and is dated at about the end of the third or beginning of the fourth century A.D.;³ he is evidently the same as Phaedrus, the son of Zoilus, of Paeania, named on a sun-dial in the British Museum.⁴ The new geisa which Phaedrus caused to be made for the front of the stage seem contemporary in workmanship with those which were made to piece out some earlier geisa which, upside down, decorated

¹ Dörpfeld, *Ath. Mitt.* XVII, 1892, pp. 450 f.

² These geisa are assigned by Versakes (*Jb. Arch.* I, XXIV, 1909, pp. 204 f.) to a hypothetical proscenium of Nero, of which they form the only evidence. They are of a peculiar dull gray, fine-grained marble which is used for interior columns and for those in the second story of the façade of the stoa of Eumenes. In form the geisa are almost exactly like the peculiar geisa of the stoa of Attalus (Adler, *Stoa des Attalus*, pl. 6; Bohn, *Stoa Königs Attalos*, II, pl. 2) — low geisa suited to the smaller order of the second story, but with a disproportionately great overhang to crown the whole height of the façade; the mutules without guttae, and the clamps, dowels, and workmanship resemble those of the stoa of Attalus. The spacing of the mutules averages 0.613 m., which is exactly a quarter of the intercolumniations of the stoa of Eumenes (2.451 m.), and has nothing in common with any triglyph spacing of the theatre. These geisa are unlike those of the stoa of Attalus, in lacking a gutter behind the sima, in having a very slight slope on top (3 in 70), and in being cut behind for an earth pavement, as if they formed the edge of a terrace. This terrace, however, was not the roof of a Neronian proscenium, but the roof of the stoa of Eumenes.

³ A. Müller, *Bühnenalterthümer*, p. 88, note 2. Von Schöffer, without giving evidence, places him between 222/3 and 235/6 A.D. (Pauly-Wissowa, II, 597), an impossibly early date.

⁴ *I.G.* III, 437; *Museum Marbles*, IX, pl. 43, Fig. 1, pp. 193-194.

three great buttresses¹ in the western part of the stoa of Eumenes, presumably erected after the colonnades and roof had been removed.

Even if we cannot establish the exact date of the destruction of the monument of Nicias, the relative chronology of a group of late constructions which are practically contemporary will help to determine it: (1) the destruction of the stoa of Eumenes and the monument of Nicias, (2) the reconstruction of the Beulé Gate, (3) the reconstruction of the stage of the theatre by Phaedrus, and (4) the erection of the buttresses against the back wall (then rebuilt) of the stoa of Eumenes.

W. B. DINSMOOR.

ATHENS.

P.S. — The sima which I tentatively assigned to the Nicias monument must now be discarded. Another fragment of the same type, now in the theatre of Dionysus, has a joint at the left end and a portion of a lion-head spout, and is therefore a flank sima; the edge of the lion head is 0.205 m. from the joint. According to the scale, the width of the lion head must have been about 16 cm., and this would make the length of the block about 57 cm., too great to fit the mutule spacing (0.523 m.) of the Nicias monument. The fragment first known, 39 cm. long, without a trace of either joint or lion head, seems to be a raking sima from a gable.

In a recent article entitled 'Zu den Bauwerken Athens' (*Ath. Mitt.* XXXVI, 1911, pp. 39-72), Professor Dörpfeld discusses, among other buildings, the monument of Nicias. He notes that the capital identified by Versakes had previously been assigned by Penrose to the upper tier of columns inside the Parthenon (*Ath. Mitt.* 1911, p. 62). It must be admitted that its present position, east of the Parthenon, would be more natural for a portion of the Parthenon itself than for a fragment of the monument of Nicias. But this capital has a lewis hole for lifting, unlike any capitals of the Parthenon, a mode which did not appear, except in unusual cases, until the fourth century. Again, it has twenty channels, and it is unlikely that, when the columns of the lower tier inside the Parthenon,

¹ Only two now remain.

to be more in scale with the external order, had only sixteen channels (Penrose, *Athenian Architecture*², p. 9), the still smaller columns of the upper tier should have had twenty. I see no reason, therefore, to reject the original identification by Versakes.

When Professor Dörpfeld wrote, I believed that, on account of the arrangement of the tympanum antithemata, the central tympanum block identified by Versakes did not belong to the monument (*Ath. Mitt.* 1911, p. 64); subsequent investigation caused me to decide otherwise, as I have said above.

Dörpfeld accepts my identification of the foundations and admits that, because of their location beside the precinct of Dionysus, Furtwängler's suggestion of a confusion of the earlier with the later Nicias by Plutarch is somewhat more plausible. He prefers, however, his original theory, that the elder Nicias actually built a temple, the second temple of Dionysus (*Ath. Mitt.* 1911, pp. 66-67).

Finally, Dörpfeld now believes, as I do also, that the workmanship of the Beulé Gate is too poor for the second century A.D., and must date from late Roman or even Byzantine times.

W. B. D.

ATHENS,
November, 1910.

ARCHAEOLOGICAL DISCUSSIONS¹

SUMMARIES OF ORIGINAL ARTICLES CHIEFLY IN CURRENT PUBLICATIONS

WILLIAM N. BATES, *Editor*

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GENERAL AND MISCELLANEOUS

The Thracian Element in the Rumanians. — E. FISCHER, in *Z. Ethn.* XLII, 1910, pp. 311–315, in a résumé of the inaugural dissertation of Perikles Papahagi (Leipzig, 1908), maintains that Rumanian, Albanian, Modern Greek, and Bulgarian folklores, ways of thinking and speaking, including proverbs, riddles, songs and tales, superstitions, household customs, etc., resemble one another because all have a common “Thracian” basis. He compares herewith what we know of the ancient Thraco-Illyrian stock.

The Pumpelly Expedition to Central Asia. — At the June (1909) meeting of the Berlin Archaeological Society, Hubert Schmidt spoke on the geologic-archaeological expedition to Turkestan in 1904, of which he was a member, and on the publication of the results by the Carnegie Institute (Washington, 1908), and expressed the opinion that R. Pumpelly's chronological estimates are much exaggerated. Four periods of habitation were studied by deep excavations on three sites: I. Stone, set by Pumpelly at 8000 B.C.; II. Bronze; III. Bronze, about 2000 B.C.; IV. Iron, 1000–500 B.C. Great oscillations of climate, producing periods of flood, occurred both before and after the two bronze periods, separating them from the stone and iron periods. The cultivation of grain goes back to the very earliest time, when only wild animals were known, and the horse, ox, pig, and sheep appear domesticated before the end of the first period. The camel and goat come in at the beginning of period II. Central Asia seems to have been the original home of domestic animals as well as of human kind. (*Arch. Anz.* 1910, cols. 63–66.)

¹ The departments of Archaeological News and Discussions and of Bibliography of Archaeological Books are conducted by Professor BATES, Editor-in-charge, assisted by Professor C. N. BROWN, Miss MARY H. BUCKINGHAM, Mr. L. D. CASKEY, Miss EDITH H. HALL, Mr. HAROLD R. HASTINGS, Professor ELMER T. MERRILL, Professor FRANK G. MOORE, Professor CHARLES R. MOREY, Dr. JAMES M. PATON, Professor LEWIS B. PATON, Professor A. S. PEASE, Professor S. B. PLATNER, Dr. N. P. VLACHOS, and the Editors, especially Professor MARQUAND.

No attempt is made to include in this number of the JOURNAL material published after June 30, 1910.

For an explanation of the abbreviations, see pp. 140, 141.

The Inscription from the Stūpa of Kanishka.—In *C. R. Acad. Ins.* 1909, pp. 786-790, E. SENART discusses the inscription on the bronze urn found by Spooner in the stūpa of Kanishka in the Peshawar valley (see *A.J.A.* XIV, pp. 81-83). He doubts the correctness of interpreting *Agisala* as a proper name, Agisalaos, and suggests that it is a dialectic form for *agnisālā*, "sanctuary of the fire."

Drawings by Melchior Lorich.—Two drawings now in Copenhagen, which were made in Constantinople in 1559 and 1561 by Melchior Lorich, a native of Flensburg, then on the staff of the Imperial Ambassador to the Porte, are published by H. HARBECK in *Jb. Arch.* I. XXV, 1910, pp. 28-32 (3 figs.) together with a photograph of the original of one of them. This is a relief on the west side of the base of the obelisk set up in the Hippodrome by Theodosius in 390 A.D. and still there. The original of the other, a relief commemorative of victory, on the base of a round column, is not known. Both drawings have the figures unduly lengthened, and in the first one some details seem to be supplied from the imagination.

The Façades of the Nabataean Rock-tombs.—With the appearance of new material on the Nabataean rock-tombs, especially Jaussen and Savignac's studies of the façades at Hegra (*Mission archéologique en Arabie*, Paris, 1909), in which the dates of particular tombs are more fully given than elsewhere, the question of the origin of various architectural elements and the chronological sequence of styles, both at Petra and at Hegra, is brought nearer to a solution. Apparently the earliest, orientalizing form, copied from the Arab house with pylon-like front and "stepped" battlements or peaks like altar-horns, was declining before the beginning of the Christian era, and a new Hellenistic type was introduced at about that time, which in turn gave place to a more Romanized form in the second century. It seems probable, though not certain, that the Greek elements, instead of coming in gradually, first appeared in a fully developed combination that had its origin elsewhere, and then fell away by degrees, as not congenial to the native taste. The ultimate origin of some non-Greek elements, such as the hollowed cornice, seems to be Egyptian. Both Alexandria and Northern Syria have similar tomb-types, but the nearest analogies are found around Jerusalem. (O. PUCHSTEIN, *Arch. Anz.* 1910, cols. 3-46; table; 16 figs.)

The Sabaeen God Ilmukah.—In *Mitt. Vorderas. Ges.* XIV, 1909, pp. 305-374, D. NIELSEN discusses a divinity whose name appears more frequently than any other in the Sabaeen inscriptions. After a review of previous theories in regard to the pronunciation of the name of this god, he reaches the conclusion that the correct pronunciation is *Ilmukah*, and that it is made up of the two words *il* and *mukah* and means "the god of decision," that is, the god who decides matters by means of his oracle. This is not a true proper name but only an appellative, and the divinity who was described by it was really the moon-god, who occupied a position of supreme importance in ancient Arabia as an oracle-giver in the same manner as the moon-god Sin in Babylonia.

The Swastika as the Origin of the Alphabet.—In *Memnon*, III, 1909, pp. 175-200, W. SCHULTZ examines the traditions which connect the origin of writing with a primitive man who was of divine origin, and shows that the swastika in its various forms is meant to be a symbol of this personage.

These traditions, he holds, contain a reminiscence of the fact that the letters of the alphabet are derived from the swastika sign, and are primarily magical characters that were invented in the service of religion. He then endeavors by a comparison of old Greek and Semitic forms to show that the letters of the alphabet are developments of the swastika sign.

The Meaning of the Chinese Name Fu-lin. — In *J.A.O.S.* XXX, 1909, pp. 1-31, F. HIRTH seeks to prove that the country known as Fu-lin in the Chinese classics is the Roman Empire; but that the conceptions of this power are all derived from the Asiatic provinces, with which alone the Chinese had commercial dealings.

The Meaning of the Chinese Name Hiung-nu. — In *J.A.O.S.* XXX, 1909, pp. 32-45, F. HIRTH opposes the view of T. W. Kingsmill in *J.R.A.S.* XXXIV, pp. 137-141, that Hiung-nu and the Huns were different nations, and seeks to prove the identity of the two peoples.

Early Chinese Notices of East African Territories. — In *J.A.O.S.* XXX, 1909, pp. 46-57, F. HIRTH shows that the Chinese texts contain mention of Alexandria, Barbary, Socotra, Abyssinia, and possibly of Zanzibar. On the east coast of Africa Chinese remains have been discovered in considerable quantities.

Ancient Chinese Medals. — In *A. J. Num.* XLIV, 1910, pp. 1-13 (fig.), M. J. SILVESTRE prints an English translation of an important article on ancient Chinese medals, recently published in a report of the French mint. The article explains the character and meaning of the devices on the medals.

Classification of Libraries in Museums of Art. — In the *Proceedings of the American Association of Museums*, III, 1909, pp. 93-115, WILLIAM H. GOODYEAR discusses the Dewey system of classification, finds it undesirable for the libraries of Museums of Art, and proposes a new classification of books on art, primarily a division by periods.

EGYPT

The Temple at Wady Halfa. — In *S. Bibl. Arch.* XXXI, 1909, pp. 269-279 (3 pls.), J. H. BREASTED attacks the article of P. Scott-Moncrieff in *S. Bibl. Arch.* 1907, pp. 39-46, in which he claims that there is no evidence of an erasure of the name of Queen Hatshepsut and of feminine pronouns and endings referring to her, and the substitution of the name of Thutmose II, in the temple at Wady Halfa. He shows by photographs that Scott-Moncrieff has failed to observe all the evidence, and has copied the inscriptions inaccurately; and exhibits in detail the evidence that the temple was erected originally by Thutmose III and Hatshepsut jointly, and that the name of Thutmose II has been repeatedly inserted in the place of Hatshepsut, and that feminine pronouns and endings referring to her have been changed to the masculine. *Ibid.* pp. 333-338, P. SCOTT-MONCRIEFF replies to Professor Breasted, by saying that the inaccuracy in his article was due to the fact that he was not intending to make a complete scientific report of his investigations.

The Egyptian Land Kefti. — In *Or. Lit.* XIII, 1910, cols. 49-54, A. WIEDEMANN discusses the relation of the Egyptian name Kefti to the Biblical Kaphtor, and calls attention to a text in which Kefti-herau or Upper Kefti is mentioned. From this name he holds that the Biblical Kaphtor has been derived. *Ibid.* cols. 108-112, W. M. MÜLLER discusses the identity of Kefti

with the island of Crete; also its relation to Kaphtor. He regards Kefti as the earlier form, and Kaphtor as a later spelling that did not find its way into Egypt until the sixth century.

Scarabs as Historical Documents.—In *Ber. Kunsts.* XXXI, 1910, cols. 92-99 (16 figs.), H. SCHÄFER calls attention to the importance of scarabs for Egyptian history. They have preserved the names of several kings not otherwise known, and, in a way, furnish the information elsewhere obtained from coins. Four large scarabs of Amenophis III, now in Berlin, giving incidents in the king's life, the extent of his kingdom, his hunting exploits, etc., are described and in part translated.

The Semitic Name for Egypt.—In *Z. Alttest. Wiss.* XXIX, 1909, pp. 268-274, W. CASPARI maintains that the Semitic name for Egypt, which appears in Hebrew as *Misraim*, is not of Egyptian origin, but has been derived by the Semites from some other race which at the time exercised sovereignty over Egypt. This he thinks may have been the Hyksos, whose native name may have been composed of the consonants *mšr*. This name they brought with them into Egypt at the time of their conquest, and from them it spread to the Semites and became their permanent designation of Egypt. This theory would explain why we find the same name in use for a part of Arabia, and also for a region of Cilicia. These were regions which were also occupied by branches of the Hyksos race.

Carved Slates from Egypt.—In *S. Bibl. Arch.* XXXI, 1909, pp. 297-310 (7 pls.), F. LEGGE continues his discussion of archaic carved slates begun in previous numbers of that journal (*A.J.A.* XIV, p. 208), with a description of six more of these slates which represent various animals attacking men and attacking one another. He concludes that the figure of the lion which appears on all is the emblem of one of the tribes that invaded Egypt in pre-dynastic times and enslaved the aboriginal inhabitants that it found there. The earliest settlement of this lion tribe was at Mahasna, and the slates give a fairly continuous history of its rise to supremacy over other invading tribes, of its overthrow, and of its reduction to an equality with them in a confederation.

The Beginnings of Statuary in Egypt.—In *R. Arch.* XV, 1910, pp. 244-262 (36 figs.), F. W. VON BISSING traces the progress of statuary in Egypt from the primitive archaic terra-cottas and ivories of the times before Menes through the more developed statuettes of the Thinite period to the classic art of the Memphite dynasties.

An Entrance into the Lower World at Thebes.—In *S. Bibl. Arch.* XXXII, 1910, pp. 102-114, G. FOUCART discusses the Egyptian representations of that moment of the second life when the ghost of the deceased, about to cross the boundary of the world of the living, finds itself at the foot of the Mountain of the West. The divine cow, or the edifice in pyramidal form, or better still, the cow and the edifice combined, form the principal subject of the scene. These represent a group of ceremonies and buildings which had a real existence. Their site was at the bottom of the amphitheatre of Deir el-Bahri, and the subterranean chambers and temple pyramid found by Naville on this spot are the remains of the buildings so often figured by the Egyptians in their funerary monuments.

Ethnological Relations of the Egyptians.—In *Z. Ethn.* XLII, 1910, pp. 318-320, G. FRITSCH discusses the racial relations of various classes

of the ancient Egyptian inhabitants on the basis of craniological differences.

An Early Egyptian Contract Papyrus.—In *S. Bibl. Arch.* XXXII, 1910, pp. 5–10 (pl.), F. L. GRIFFITH publishes in hieroglyphic text and translation an early Egyptian contract relating to the sale of a slave, that is preserved in the Vatican library, and exhibits the rare “abnormal hieratic” writing which prevailed during the twenty-fifth and part of the twenty-sixth dynasty.

Graeco-Egyptian Portraits.—In *B. Metr. M. V*, 1910, pp. 67–72 (11 figs.), A. M. L.(YTHGOE) publishes seven portrait panels of the so-called Fayum type recently acquired by the Metropolitan Museum of New York, calling attention to the technique and date of these monuments and of the plaster masks from mummy cases. The first Hellenized masks and panels make their appearance in the first century A.D., but most of them date from the second century. Some of the masks are portraits, while others represent conventional types. The Metropolitan Museum has thirty-eight of these masks. The panels in their realism and freedom of treatment are far better. They were not, however, always painted from the individual, as a panel in the Cairo museum has on the back memoranda by the painter of the way the features of the person were to be depicted. The painting is usually in encaustic on wooden panels, but sometimes in distemper, and occasionally in both methods. The colors were mixed with melted wax and then applied in a fluid state either directly to the wood or after the surface had been sized. The drapery and background were painted with a brush, but the colors of the flesh and hair were laid on thicker and then worked over with a hard, pointed instrument. The details, such as the eyelashes, were added with a fine brush. Berger’s discovery of a *cestrum*, or spoonlike tool, in the Naples museum throws some light on encaustic painting. The portraits were rarely painted on canvas or linen.

Egyptian Deities in Northwestern Africa.—In *R. Hist. Rel.* LIX, 1909, pp. 149–159, S. GSELL points out that there is evidence for the worship of Serapis at Carthage, Gigthis, Sabrata, Thaeanae, Thysdrus, Henchir, Debbik, Choud el Batel, Rusicade, Cirta, Theveste, Tingad, Cuicul, Aquae Flavianae, Lambesis, Caesarea, Taksebe, and Malliana. Anubis and Isis were also worshipped at Carthage; and Anubis, Bes, Hermes-Thoth, and Isis at Lambesis. These cults were not popular, but flourished in seaports or where there was a large foreign population.

BABYLONIA, ASSYRIA, AND PERSIA

Royal Cylinders of the First Babylonian Dynasty.—In *R. Arch.* XV, 1910, pp. 107–117 (4 figs.), L. DELAPORTE publishes four early Babylonian cylinders in the Bibliothèque Nationale. One bears the name of King Sumu-la-il. On it two deities, a worshipper and his servant, are represented, all standing. On the second seal are a god and a goddess, standing. The inscription gives the name of Hammurabi. On the third seal, the owner, Ibal-erah, calls himself the “servant of Šamši-Adad.” On it three divinities are seen, the middle one being armed with a mace. The fourth seal, with the inscription “Imgur-Sin, magician, son of Sin-idinnam, servant of Sin-māgir,” has on it three figures, a warlike goddess, the person-

age with a mace, and a deity holding up his hands. A fifth seal (third in the order of the article), in the Clerq collection, differs from the second only in its inscription: "Danatum, son of Sin-taiar, son of ^{ilu} Rim-^{ilu}Sin."

Tablets of the Second Dynasty of Ur from Nippur.—In *The Babylonian Expedition of the University of Pennsylvania*, Series A, Vol. III, Pt. 1, *Sumerian Administrative Documents from the Second Dynasty of Ur* (Philadelphia, 1910, published by the Department of Archaeology, University of Pennsylvania, xii, 146 pp.; 82 pls., 4to, \$6), DAVID W. MYHRMAN publishes 171 Sumerian tablets from Nippur, now in the Free Museum of Science and Art of the University of Pennsylvania. They are chiefly contracts written during the second dynasty of Ur. The subject-matter of the tablets, the date formulas of the second dynasty, the names and the order of the months and the proper names are fully discussed. Specimen tablets are transcribed and translated and a sign list given. The writer proposes the following as approximate dates for the kings of the second dynasty: Ur-Engur, 2408-2390 B.C.; Dungi, 2390-2332 B.C.; Bur-Sin, 2332-2323 B.C.; Gimil-Sin, 2323-2316 B.C.; and Ibi-Sin, 2316-2291 B.C.

The Kingdom of Hana.—In *S. Bibl. Arch.* XXXI, 1909, pp. 292-294, C. H. W. JOHNS discusses a newly published tablet from the kingdom of Hana which mentions a person called Pagirum who is the only witness to a previously published marriage contract from Hana. The marriage contract is dated in the reign of a king Hammurapih. The year mentioned is not found in the lists of the years of Hammurabi's reign, and it is uncertain whether Hammurapih is distinct from Hammurabi; or whether he is identical, and a different system of naming the years prevailed in the kingdom of Hana from that in use in Babylon.

The Hittites in Babylonia.—In *R. Sém.* XVIII, 1910, pp. 87-96, M. JASTROW, JR., reports some new data which confirm the discovery by King of a Hittite conquest of Babylonia in the time of Samsu-ditana. The divination texts, which are full of historical references, contain further evidence of a conflict between the Babylonians and Hittites. In two of these texts it is recorded that an eclipse is a sign that the king of the Hittites will advance and seize the throne. These statements are based upon observation of an actual Hittite conquest, and show that the interval between the first dynasty of Babylon and the reign of the first Kassite king is filled by a reign of Hittite chiefs in Babylonia. The historical references in these omen-tablets belong to the period between 2300 and 1760 B.C. Hittite influence is also confirmed by the presence of Hittite names among the first kings of Assyria in the period which corresponds to their incursion into Babylonia.

Babylonian History.—In *R. Arch.* XV, 1910, pp. 145-160, is a sketch of 'Quinze siècles d'histoire babylonienne (3000-1500 av. J.-C.),' by G. MASPERO, reprinted from *Le Temps*, January 4, 1910.

The History of Seal Cylinders.—In *Ber. Kunsts.* XXXI, 1910, cols. 200-204 (8 figs.), L. MESSERSCHMIDT sketches the history of Babylonian seal cylinders, first as seals and later as amulets, and publishes eight cylinders in the Berlin museum dating from the Persian period.

Old Babylonian Legal Documents.—In *Sitzb. d. Kais. Akad. d. Wissenschaften in Wien, Phil.-hist. Klasse*, CLX, 1909, Abh. 5, pp. 1-92, MOSES SCHÖRR publishes in transliteration and translation, with commentary, word

list, and index, forty-one of the 119 legal texts first published by Ranke in *The Babylonian Expedition of the University of Pennsylvania, Series A: Cuneiform Texts*, Vol. VI, Part I. The documents are in Ranke's numbering, 1, 2, 6, 7, 8, 10, 13, 14, 15, 23, 26, 27, 30, 34, 39, 42, 45, 47, 49, 50, 51, 53, 58, 62, 65, 74, 75, 76, 77, 78, 83, 86, 87, 88, 89, 94, 97, 98, 103, 111, 116, all from the time of the first Babylonian dynasty.

A Relief of Goudea.—In *Mon. Piot*, XVI, 1909, pp. 5-24 (2 pls.; 5 figs.), L. HEUZÉY points out that in 1905 a stairway of nine steps was uncovered by Cros at Tello, and about ten metres in front of it remains of a rectangular building. On the southwest side of this building, facing the stairway, were remains of three bases of sun-dried brick. The middle one supported a large relief of which more than a hundred fragments were found near by (see *A.J.A.* XIV, p. 365). The large fragment in the Louvre representing a procession may well have belonged to this stele. An attempt is made to reconstruct some of the scenes in spite of their fragmentary condition. Goudea is known to have erected seven of these stelae (Cylinder A of Goudea), and they were probably destroyed by the Elamites in the time of Koudour-mapoug.

Another Fragment of the Etana Myth.—In *J.A.O.S.* XXX, 1909, pp. 101-131 (4 pls.), M. JASTROW, JR., publishes a tablet from Ashurbanipal's library in the possession of the Berkshire Athenaeum of Pittsfield, Mass. It contains a part of the Etana myth which supplements the fragments of this myth previously published by Harper.

A Hymn to Bêl.—In *J.A.O.S.* XXX, 1909, pp. 61-71, F. A. VANDERBURGH publishes in transcription and translation, with a commentary, the hymn to Bêl published in *Cuneiform Texts*, XV, pls. 12 and 13.

A Hymn to Tammuz.—In *J.A.O.S.* XXX, 1909, pp. 94-100, J. D. PRINCE publishes in transliteration and translation, with a commentary, the hymn to Tammuz contained in *Cuneiform Texts*, tablet 15821, pl. 18.

The Seventh Tablet of Creation.—In *S. Bibl. Arch.* XXXII, 1910, pp. 115-123; 159-167, S. LANGDON reconstructs, with the aid of Assyrian commentaries, part of the Sumerian text of the seventh tablet of creation.

The Babylonian Parallel to the Story of Job.—In *S. Bibl. Arch.* XXXII, 1910, pp. 18-24 (2 pls.), R. C. THOMPSON publishes a part of the third tablet of the series known as *Ludlul bêl nimêki*, which was published by Professor Jastrow in *J. Bibl. Lit.* XXV, pp. 135 ff., under the title, 'A Babylonian Parallel to the Story of Job.' Hitherto the third tablet has been known only from a commentary.

The Accadian Calendar.—In *S. Bibl. Arch.* XXXII, 1910, pp. 11-17; 55-63 (pl.), EMELINE PLUNKET discusses the problem whether the beginning of the first month Nisan in the Babylonian calendar was determined zodiacally or equinoctially, and concludes that the old Babylonian practice, which was preserved by the Assyrians in the recorded astronomical observations of the seventh century B.C., was to reckon the beginning of the year zodiacally; that is, the first of Nisan was counted from the first visibility of the new moon which coincided with or most closely followed the arrival of the sun in the constellation Aries; and that the determination of the new year was accomplished by observation of the group of stars which are now known as the Pleiades.

The Old Babylonian Method of Dating.—In *Or. Lit.* XIII, 1910, cols.

193-195, F. E. PEISER publishes a new document belonging to the twenty-fourth year of Samsuiluna, which throws light upon the method of naming the years followed by the ancient Babylonians.

The System of Intercalation in the Babylonian Calendar.—In *Or. Lit.* XIII, 1910, cols. 66-67, A. UNGNAD shows that there was no regular system in ancient Babylonia for inserting extra months in order to make the lunar year correspond with the solar year. These months were apparently inserted arbitrarily whenever it was felt that the lunar year was falling too far behind the solar.

Babylonian Weights.—In *Z. Morgenl. Ges.* LXIII, 1909, pp. 701-729, K. REGLING and C. F. LEHMANN-HAUPT discuss the article of F. H. Weissbach in *Z. Morgenl. Ges.* LXI, 1907, pp. 379 ff., and maintain, in opposition to him, that the existence of two distinct systems of weights, the so-called ordinary and the royal, can be proved for Babylonia and Assyria, that there was a distinction between the gold and silver mina, that the former was divided into 50 instead of 60 shekels, and that there was a fixed ratio of $13\frac{1}{2}$ to 1 between gold and silver.

The Black Obelisk and the Moabite Stone.—In *S. Bibl. Arch.* XXXII, 1910, pp. 152-154, A. FOTHERINGHAM discusses the mention of Jehu as "the son of Omri" in the Black Obelisk of Shalmaneser II, and the mention of "the sons of Omri" in the Moabite Stone, and finds their explanation in the assumption by Jehu of the official title "son of Omri." He holds that the Moabite Stone is to be dated in the middle of Jehu's reign, which will allow for forty years, that is, a generation, between Omri's later years and the erection of this monument.

The Genealogy of the Kings of Assyria from 1400-722 B.C.—In *Or. Lit.* XII, 1909, cols. 527-531, P. SCHNABEL attempts, on the basis of the newly discovered inscriptions in the city of Asshur, to reconstruct the genealogical relationship of all the kings of Assyria whose names are known to us.

The Annals of King Tukulti Ninip II.—In *C. R. Acad. Insc.* 1909, pp. 807-820, FATHER SCHEIL describes a large tablet brought to Moussoul a few years ago. It contains in 147 lines of fine writing the annals of the Assyrian king Tukulti Ninip II (889-884 B.C.). Facts, dates, names, etc., are carefully recorded. The first five campaigns of the king are briefly reviewed, and the sixth described in detail. The text of this is given with a translation.

A New Prism of Sennacherib.—In *Or. Lit.* XIII, 1910, cols. 145-150, H. WINCKLER describes a new prism of Sennacherib recently published in the twenty-sixth volume of *Cuneiform Texts from Babylonian Tablets in the British Museum*. This new document supplements the previously known sources in regard to Sennacherib's reign by further information concerning the expeditions against Hilaku Kue and Til-garimmu in the years 698-695 B.C.

Azariah of Judah and Tiglath Pileser III.—In *J. Bibl. Lit.*, XXVIII, 1909, pp. 182-199, H. M. HAYDN seeks to show that the current view that Azriyau, king of Yaudi, in the inscriptions of Tiglath Pileser III is not to be identified with Azariah of Judah, is incorrect, and that the older identification of these names by Schrader is still to be maintained.

The Standing Army of the Assyrian Kings.—In *Z. Assyr.* XXIV, 1910, pp. 97-149, W. MANITIUS opposes the current view that the Assyrian

army was made up chiefly of mercenaries, and shows that in the Old Empire it was composed of native Assyrians, who were drafted for the campaigns, but who did not form a standing army. In later times the growth of the empire made a standing army necessary, but even this was not composed of foreigners, but of native Assyrians and of the people of the provinces that had been incorporated into the Assyrian Empire. This force consisted of chariotry, horsemen, infantry, shield-bearers, lancers, archers, slingers, and artisans. The functions of these various troops as described in the inscriptions are investigated in detail.

An Early Mention of Cotton.—In *S. Bibl. Arch.* XXXI, 1909, pp. 339–343, L. W. KING calls attention to the fact that in the historical cylinder of Sennacherib, which has recently been acquired by the British Museum, the king reports that in the great park which he laid out in Nineveh “the trees that bore wool they sheared, and they shredded it for garments.” This tree that bore wool must have been the tree-cotton which still grows in Egypt and India.

Literature on Assyriology.—In *J. Asiat.* XVI, 1909, pp. 415–482, C. FOSSEY gives a detailed account of all the publications in the field of Assyriology during the year 1907.

A Persian Vaulting System.—A study of the vaulting system of the deserted palace of Ukheidar is made by Miss G. L. BELL in *J.H.S.* XXX, 1910 (pp. 69–81; plan; 12 figs.), as a contribution to the material for a final study of the relation of Hellenistic architecture to that of the East. This palace, which stands on the eastern edge of the Syrian desert, and was perhaps built by Sassanid architects as a retreat for the Ommayad califs of Damascus (660–750 A.D.), is almost perfectly preserved, and has three stories standing on the side which adjoins the fortified wall of the enclosing court. It is built of stone with some brick vaults and others of stone slabs cut to the size and shape of bricks. The masonry was originally covered with stucco, often with elaborate plastic decoration in geometric designs. The roofs have both barrel vaults, made without centering, and groined vaults. Interesting features are the tunnels reserved in the masses of intervening masonry for lightening and perhaps for cooling the structure, and one small dome set on slats across the corners of a rectangular chamber. The squinch arch, a sort of arched niche over a square corner, occurs, but the dome set on pendentives, which seems to have been an invention of the coast cities of Asia Minor, does not appear.

SYRIA AND PALESTINE

Recently Discovered Semitic Inscriptions.—In *Eph. Sem. Ep.* III, 1909, pp. 37–84 (pl.; 4 figs.), M. LIDZBARSKI describes and discusses all the Hebrew, Phoenician, Punic, Aramaic and Nabataean inscriptions that have been published in the course of the past year. He also reports the bibliography on the subject of the Aramaic papyri discovered in Egypt. There is an elaborate discussion of the so-called calendar inscription lately discovered at Gezer, and a plate containing a photograph of this inscription.

The Gezer Tablet.—In *Pal. Ex. Fund*, XLII, 1910, pp. 32–38, E. J. PILCHER maintains that the script of the tablet recently discovered at Gezer cannot be assigned to the eighth or ninth century B.C., as has been done by

Cook and Lidzbarski, but is not earlier than the sixth century B.C. Incidentally he suggests that the Siloam inscription is not earlier than the Greek period.

Abraham in Archaeology. — In *J. Bibl. Lit.* XXVIII, 1909, pp. 152-168, G. A. BARTON sums up the results of the discussions of the last few years concerning the bearing of the discoveries of archaeology upon the historical character of Abraham. The name Abraham has been found as a personal name in Babylonia in the time of the Hammurabi dynasty. The evidence that Babylonia long dominated Palestine is constantly on the increase. Certain statements of the fourteenth chapter of Genesis have been rendered more probable by some of the recently discovered facts. But archaeology is still far from having established the early composition and historical character of Genesis xiv. The best theory in regard to that chapter is still that it was composed by a late Midrashic writer who had access to some genuine Babylonian data, partly late and partly early. The early presence of the Hittites in Palestine has been established, and it may be that the priestly document is correct in placing them at Hebron. The chronology of Genesis xiv has been helped by the proof that the second dynasty of Babylon was contemporary with the first. The Canaanite migration and the lives of the patriarchs according to Genesis would thus be contemporary with the period of Kassite rule in Babylonia. This is the age to which all the Biblical references except Genesis xiv point; but Genesis xiv is inconsistent with this, if Amraphel of that chapter be identified with Hammurabi. The same subject is discussed by A. UNGNAD in *S. S. Times*, LII, 1910, p. 47.

Cushan-Rishathaim. — In *Exp. Times*, XXI, 1910, p. 192, C. J. BALL suggests that Cushan-Rishathaim in Judges iii, 7-11, is identical with the Kassite name Cash-sha-ri-shat, and that Cush designates the Kassite dynasty in Babylonia. In this name we may have preserved the proof of a Kassite invasion of Palestine.

The Number 42 in the Old Testament. — In *Or. Lit.* XIII, 1910, cols. 150-152, J. HERRMANN shows that the 42 judges of the dead played a large part in the ancient Egyptian religion, and calls attention to the fact that in at least four passages in the Old Testament the number 42 is connected with the dead. In this fact he sees a survival of Egyptian thought in Hebrew tradition.

The Image of Yahu in the Temple of Solomon. — In *Memnon*, III, 1909, pp. 159-162, H. SCHNEIDER claims that the so-called "pillar" mentioned in the Book of Kings as set up by Solomon, the sacred object before which King Josiah made a covenant, and which was carried away by Nebuchadnezzar, is a Jewish euphemism for an image of Yahu, or Yahweh, that stood in the Temple of Solomon at Jerusalem.

The Position of the Altar of Burnt Sacrifice in Jerusalem. — In *Pal. Ex. Fund*, XLII, 1910, pp. 15-22, C. M. WATSON contests the current theory that the altar of burnt offering in the Temple of Herod stood upon the site of the Sakhra or Sacred Rock in the modern Dome of the Rock, and maintains that the Sakhra was really the site of the Holy of Holies. *Ibid.* pp. 137-139 (fig.), J. M. TENZ defends the view that the Sakhra was the site of the altar, and shows that the measurements of the Temple courts given by Josephus and the Talmud correspond better with this assumption.

The Ass in Semitic Mythology. — In *S. Bibl. Arch.* XXXII, 1910,

pp. 64-72, C. J. BALL shows that the ass was a sacred animal among the primitive Semites, and that among the Babylonians the ideogram for ass is connected with the ideogram for heaven. Traces of this sanctity survive in the Old Testament in the names Anah and Anath, and in Genesis xxxiv, 24 we have a curious mythological reference to an Anah who found the she-asses (?) in the wilderness when he was grazing the he-asses of Zibeon his father. The stories of Shamgar ben Anath, of Samson, and of Balaam also contain elements of mythology concerning the ass. In view of these facts, it is not impossible that the stories of classical writers that the Jews had an ass's head in their holy place at Jerusalem may have been true, and that the temple may have contained an image of an ass as a survival of an ancient religious emblem.

The First Workers in Steel. — In *Z. Ethn.* XLII, 1910, pp. 15-30, W. BELCK decides that the Philistines were the discoverers of the art of making steel. He relies on 1 Samuel xiii, 19-22, Joshua xvii, 16-18, Judges i, 19 and iv, 3, where the Philistines' and Canaanites' "iron" weapons and chariots must certainly have been of steel. He thinks the comparatively late introduction of steel among surrounding peoples is explained by supposing the Philistines to have developed the art, first, of iron working, and then of steel manufacture, in Crete, during some eight or ten centuries prior to their invasion of Canaan in the fourteenth or thirteenth century B.C., in the conquest of which they were aided greatly by their scythe-bearing chariots.

A Causeway across the Dead Sea. — In *Pal. Ex. Fund.* XLII, 1910, pp. 112-115 (2 figs.), A. FORDER describes an ancient causeway that formerly connected the peninsula known as the Lisân with the western shore of the Dead Sea. In the course of the last forty or fifty years the water of the Dead Sea has been steadily rising, so that the causeway is now submerged, but its course can still be traced by soundings made from a boat, and aged Bedawin still remember a time when they were able to cross on it. In the same article the description is given of a huge monolith known as Hajr Serbût, which is situated a short distance east of Kerak.

The Jewish Royal Pottery Stamps. — In *S. Bibl. Arch.* XXXII, 1910, pp. 93-101; 143-152 (3 pls.), E. J. PILCHER claims that the stamped jar-handles which have been found in such numbers in the excavations in Palestine, and which bear a winged object and the words "to the king," followed by the names Hebron, Ziph, Socoh, or Memshath, do not belong to the period of the Hebrew monarchy, as has commonly been supposed, but date from the Persian period. The winged object on these seals is not a scarab, but is the winged disk which was the Persian royal emblem, and the king mentioned in these inscriptions is not a Hebrew monarch, but the great king of Persia.

The Origin and History of the Minaret. — In *J.A.O.S.* XXX, 1909, pp. 132-154, R. J. H. GOTTHEIL shows that the minaret did not exist in early Muhammadan mosques, but that it was derived from the towers of Christian churches in Syria and Mesopotamia, which in their turn were modifications of the ziggurats of ancient Babylonian temples.

Recent Opinions on the Site of Calvary. — In *Pal. Ex. Fund.* XLII, 1910, pp. 23-27, A. W. CRAWLEY-BOEVEY summarizes the recent discussions of the site of Calvary, and urges a more favorable consideration of the site originally suggested by Thenius and followed by Conder and Gordon.

An Inscription from Samaria.—In *B. Soc. Ant. Fr.* 1909, pp. 296–300, Father LOUIS JALABERT criticises C. H. Moore's restoration of the Latin inscription found by the Harvard Expedition at Samaria (*Harvard Theological Review*, II, 1909, p. 111) and proposes to read it, *I(ovi) O(ptimo) M(aximo) mil(it)es r[e]xi[t](larii) coh(ortium) Pa(nnoniae) Sup(erioris), cives Sisc(iani) [et] Vorcian(i) et Latobici, sacrum fecerunt.*

Coins of Pella (Palestine).—The publication elsewhere of a coin of Pella with the portrait of Lucilla gives W. KUBITSCHKE occasion to discuss various points concerning the coinage of this city, especially with regard to the Lucilla-portrait type. (*Num. Z.*, 1909, pp. 19–32; fig.)

Claudia Apameia.—In *B. Soc. Ant. Fr.* 1909, pp. 343–347, L. JALABERT discusses an inscription from Apameia (*Publications of an Amer. Arch. Exped. to Syria in 1899–1900*, Pt. III, No. 126) which shows that that town was designated as Κλαυδιά and Ἀντωνεινούπολις. The first name connects it with the Emperor Claudius, and the second with Caracalla.

Roman Stamps in Jerusalem.—In *R. Bibl.* VII, 1910, pp. 261–265, H. VINCENT reports certain small stone stamps now preserved in the museum of Baron Ustinow at Jerusalem. These contain specimens of early Christian art, and seem to have been used for stamping patterns on the wafers that were used in the eucharist.

ASIA MINOR

The Figure of an Amazon from Boghazkeui.—In *S. Bibl. Arch.* XXXII, 1910, pp. 25–26 (pl.), A. H. SAYCE publishes a photograph and a sketch by Miss Dodd of Constantinople which show that the figure on the east gate of the Hittite capital at Boghazkeui, which is described by Winckler as “a figure of a king,” is really a figure of an armed woman warrior.

The Hittite Inscriptions.—In *S. Bibl. Arch.* XXXI, 1909, pp. 259–268; 327–332, A. H. SAYCE continues his publication and attempted translation of Hittite inscriptions begun in preceding numbers of the same journal.

The Lycians.—In *Alt. Or.* XI, 1910, Pt. II, pp. 1–32 (6 figs.), T. KLUGE discusses the history of the Lycians, so far as it is known to us from the records of their neighbors; the inscriptions and the history of their decipherment; and the various archaeological remains that they have left in Asia Minor. In *Mitt. Vorderas. Ges.* XV, 1910, pp. 1–135, under the title ‘Studien zur vergleichenden Sprachwissenschaft der kaukasischen Sprachen. II. Die lykischen Inschriften,’ the same author publishes a careful study of the Lycian inscriptions with translation and commentary. He also attempts to construct a grammar, and gives a vocabulary as far as that is possible with the existing material. He thinks the language is Caucasian.

Remains of Ancient Cults in Phrygia.—In *R. Hist. Rel.* LIX, 1909, pp. 1–16 (4 figs.), E. BRANDENBURG argues that the steps, niches, and grottoes in various parts of Phrygia were for religious purposes. The steps, upon which offerings were probably placed, really represent a seated figure of a goddess. If she was a goddess of the mountains, the small niches and grottoes would be suitable resting-places for her, where she might be worshipped.

A Celtic Cult in Galatia.—A Celtic god Bussurigius, surviving into the third century A.D. in northern Galatia, has been found in three inscrip-

tions at Aktehe Tash, and is given belated recognition by J. G. C. ANDERSON in *J.H.S.* XXX, 1910, pp. 163-167. Both this author and W. M. Ramsay had previously said that the religion and ritual of the conquered Phrygians had entirely absorbed those of the Gallic conquerors in this region. The ending *-rigius* equals *regius*, as *-marus* in Bussumarus or Bussumarius, of Dacia and Moesia, equals *magnus*. With *-rigius* is to be compared *-rix* = *rex*, in Ambiorix, etc. Two villages mentioned in the inscriptions can be identified: Icotarium (Acitoriziacum of the Peutinger Table) at Elejik, one and one quarter miles from Atche Tash, and Malos, which figures in the life of St. Theodotus of Ancyra, at Kalejik, in the Halys valley.

A Parthenon in Caria.—In *B.C.H.* XXXIII, 1909, p. 547, THEODORE REINACH states that the dedication of a *Parthenon* of the mother of the gods published by him, *ibid.* XXXII, 1908, p. 498, was found at Apollonia in Caria.

Miletus and Didyma.—In *Jb. Kl. Alt.* XXV, 1910, pp. 103-132 (7 pls.; 7 figs.), A. VON SALIS gives a general account of the German excavations at Miletus and Didyma. He describes the theatre, public baths, market-place, bouleuterion, a heroön, and parts of the early town walls: The city destroyed by the Persians was about a third larger than the Graeco-Roman city. Great masses of vase fragments were found, dating from Mycenaean times and later. The Ionian remains rest directly upon the Mycenaean.

Coins of Aegeae (Cilicia).—A second example of a coin with the portrait of the Empress Cornelia Supera, wife of Aemilian, now, like the first, in the Vienna cabinet, and both struck at Aegeae, is described by W. KUBITSCHKE in *Num. Z.* 1909, pp. 19-24 (fig.), who treats also of another previously unpublished coin of the same city with a portrait of Otacilia.

Survivals of Spoken Greek in Asia Minor.—Studies of Greek dialects still spoken in villages of Cappadocia and at Silli, near Iconium, with phonetics, grammar, and specimens of tales, are published by R. M. DAWKINS in *J.H.S.* XXX, 1910, pp. 109-132 (3 figs.). In all but a few purely agricultural communities, the local dialects, which have been transmitted entirely without writing, are fast disappearing, being ousted on the one hand by Turkish and on the other, where the Greek element is more persistent, by the common modern Greek as taught in schools.

GREECE

ARCHITECTURE

The "Old Temple" of Athena on the Acropolis.—In the *Bulletin de l'Institut national genevois*, XXXVIII, 1909, pp. 145-165, G. NICOLE discusses the arguments of Dörpfeld and others, and decides that the Opisthodomos was a separate building, not a part of the Parthenon or of the old Hecatompædon, and that the old Hecatompædon did not exist after the erection of the Erechtheum. Pages 166-167 contain a bibliography.

The Chalkothekè and the Monument of Nicias.—In *Ἐφ. Ἀρχ.* 1909, pp. 211-238 (pl.; 17 figs.), F. VERSAKIS restores the Chalkothekè of the Athenian Acropolis as it was reconstructed in Roman times. The restoration is based upon architectural fragments found upon the Acropolis, which correspond to the dimensions of the foundations of the building. The stoa had Doric columns in front of an Ionic order supported by unfluted Corinthian columns.

thian columns, which stood close to the front wall. The author also discusses the site and date of the Nicias monument. The natural place for it is the precinct of Dionysus; and the foundations assigned to it by Dörpfeld, near the odeum of Herodes Atticus, are not suitable for such a building. The remains of the monument that were noted by Dörpfeld, together with others recently identified, point to a date earlier than that of the inscription which it bears. It may, then, have been originally erected as a choregic monument by the great Nicias, son of Niceratus, and later appropriated for a similar purpose by one of his descendants, the Nicias, son of Nicodemus, of the inscription.

The Scene Buildings of the Dionysiac Theatre.—With a detailed study of the remaining portions, or fragments, of the scene buildings of the Dionysiac Theatre, and with special reference to the publications of Dörpfeld and Puchstein on the subject, F. VERSAKIS attempts reconstructions of these buildings in Greek and in Roman times, and argues for an earlier chronology than has been advocated by these writers, for the Greek period. Thus, he sets the first stone building, of two stories, considerably earlier than Lycurgus, perhaps in the fifth century; and assigns to Lycurgus an extensive repairing, or rebuilding, with the greater part of the sculptured decorations and the originals of such as were actually executed in the time of Nero. The four large groups now in the bema of Phaedrus he thinks were a basement, perhaps of the *parascenia*, the satyrs and silenoi of two different heights, telamones for the upper and lower stories, and the kneeling satyrs, acroteria for the *parascenia*. All the marble cornices, epistyles, statues, and columns, and even wall blocks, were moved and often greatly altered in their use, in the reconstruction under Nero. (*Jb. Arch. I.* XXIV, 1909, pp. 194–224; 32 figs.) *Ibid.* pp. 224–226, W. DÖRPFELD replies briefly to Versakis, denying many of his alleged facts and promising a fuller treatment of the whole subject, with some revision of his own views published in 1896.

The Amyclaeon Throne.—A brief report of the results of excavations on the site of the Throne of Amyclaeon Apollo (see *A.J.A.* XIII, p. 354) was made at the June (1909) meeting of the Berlin Archaeological Society by E. R. FIECHTER of Munich, who was in charge of the work after the death of Furtwängler at Athens in October, 1907. Nothing could be found of the ground plan of the structure of Bathycles; but the fragmentary remains, many of them in very fine detail, show that a marble building of unusual construction stood here, and permit at least an attempt at restoration. The statue of Apollo with its altar-base and the seats for the other gods seem to have stood in front of the throne, in a "wide space" enclosed by a fence, or screen. (Pausanias, III, 18, 10 ff.) A lively discussion followed. (*Arch. Anz.* 1910, cols. 66–70.)

SCULPTURE

Cretan Influence in Early Greek Sculpture.—In *Jh. Oest. Arch. I.* XII, 1910, pp. 243–304 (36 figs.), E. Löwy compares with the seated goddess from Prinià (*A.J.A.* XIII, p. 505) two torsos from Chios, a seated figure from Aigiorgitika in Athens, and a head from Eleutherna in Candia, and proves that the Chian School was not earlier than the Cretan. He shows,

further, that the Nicandra statue from Delos, the Chian *ξόανον* of the Acropolis, the colossal Hera head of Olympia, the sphinx of Spata, the Aphrodite of Marseilles in Lyons, a female head wearing the *polos* from the Acropolis, the Hero of Chrysapha, and the man carrying a calf of the Acropolis, although differing in many respects, all show Cretan influence. The standing "Apollo" figures are also Cretan, in spite of individual differences; but the origin of the type, as well as that of the archaic seated figures, is to be found in Egypt.

The Male Form in Archaic Greek Sculpture.—In the *Bulletin de l'Institut national genevois*, XXXVIII, 1909, pp. 281–307 (17 figs.), W. DEONNA discusses the progress of Greek sculpture, as seen in statues of nude males, from the seventh century to the beginning of the fifth century, when the "law of frontality" ceased to be followed, and the great artists, reaping the fruits of the labors of their humble predecessors, produced their masterpieces.

An Archaic Statuette.—In *R. Arch.* XV, 1910, pp. 66–92 (2 figs.), CHARLES PICARD publishes and discusses an archaic stone statuette in the Louvre. Its clumsy forms and simple geometrical proportions (the height is divided into three equal parts; chair, trunk, head and hair) are ascribed to the limitations of the artist, rather than to any real style. The statuette is, no doubt, the work of some village stonecutter. The eight-rayed stars on the skirt and the covering of the breast are of Oriental origin, and help to date the figure between the beginning of the seventh century and the middle of the sixth. It was probably made in Peloponnesus, after Cretan models, about 600 B.C., before the coming of Diponius and Scyllis.

The West Pediment of the Parthenon.—A much-battered male torso found below the west front of the Parthenon (Laborde, *Parthenon*, pl. 58, 1), which was denied a place in the pediment by Michaelis (*Parthenon*, p. 202), is discussed by B. SAUER, *Ath. Mitt.* XXXV, 1910, pp. 65–80 (pl.; 5 figs.). The figure, a nude youth, was the second from the north end of the west pediment, between the "Cephisus" and "Cecrops." He was seated very much in the attitude of the latter, partly supported by his left arm, the hand resting on the floor of the pediment, his legs extending toward the angle.

Attic Reliefs.—In *Ath. Mitt.* XXXV, 1910, pp. 1–16 (4 pls.; 2 figs.), MARGARETE BIEBER publishes three reliefs from Athens. (1) Fragment of a votive relief to Asclepius, early fourth century. (2) Votive relief with representation of two ears, second half of the fifth century. Both of these reliefs were carried away, presumably from the Asclepieum, by Hessian troopers serving in the Venetian army which occupied Athens in 1687. (3) Relief representing Artemis killing a stag, closely connected in style with the Parthenon sculptures and to be dated about 430 B.C. It appears to be a metope from a small temple, perhaps a heroön of Hippolytus on the south slope of the Acropolis.

New Interpretations of Ancient Reliefs.—In a reprint of a part of his great work, *Τὸ ἐν Ἀθήναις Ἑθνικὸν Μουσεῖον*, I. N. SVORONOS gives new interpretations of seven Greek reliefs in the National Museum at Athens. No. 1421 (Arndt-Amelung, *Einzelaufnahmen*, Serie V, 1902, p. 23, 1250 [Löwy]), from Tanagra, is explained as Cybele, Satyrus, Dionysus, and five Maenads. No. 1422 (Arndt-Amelung, *Einzelaufn.* Ser. V, 1902, pp. 24 f., 1253 [Löwy]), from Tegea, is interpreted as Pluto, Persephone, Demeter,

Sterope, and a priestess. No. 1423, from Epidaurus (Arndt-Amelung, *Einzelaufl.* Ser. V, 1902, pp. 27 ff., No. 1256 [Löwy]; Furtwängler, 'zur Athena Lemnia,' *Sitzb. Mün. Akad.* 1897, pp. 289-292; Amelung, 'Athena des Pheidias,' *Jh. Oest. Arch. I.* XI, 1908, p. 207), is found to represent Asclepius, the saviour of Lacedaemon, being armed by Athena. The explanation is based in part upon the poem of Isyllus, lines 57-79. The date would be soon after 323 B.C. No. 2723, from Marusi, near the ancient Colonus (*Ath. Mitt.* XIII, 1888, p. 351, No. 640), is explained as Heracles standing before the gate to Hades at Colonus, while a father brings to him a youth to be initiated into the lesser Eleusinian mysteries. The Heracles resembles the so-called Idolino so closely that the name Heracles is proposed for that statue. The worship at Colonus of Athena and Hephaestus is discussed. The Heracles worshipped here was probably Heracles ἐν τῷ Ἐλαμῷ. The chthonic sanctuaries at Colonus were transferred thither from the Areopagus when the Areopagus was included within the walls. Another relief (*Ath. Mitt.* XIII, 1888, p. 347, No. 603) is explained as Academus, who is identified with Echelus, Eurygyes, etc. Many questions of mythology, history, and archaeology are discussed. No. 1425 (*Ath. Mitt.* XI, 1886, p. 455, 7; Defrasse-Lechat, *Epidaure*, p. 86; Cavvadias, *Ἐφ. Ἀρχ.* 1895, pp. 180-184, pl. 8) is interpreted as Hebe, Zeus, Hera, and Nike, and is regarded as part of an altar of the twelve gods. No. 1426 (*Ἐφ. Ἀρχ.* 1885, pp. 44, 51; *Ath. Mitt.* 1886, p. 455, 4; *ibid.* 1892, p. 244, fig. 8) is found to represent Asclepius, Machaon, Podalirius, Epione, Panacea, Iaso, three sacred dogs, and a pair of suppliants. No. 1428, a gilded relief representing two ears, dedicated by Cutius (*Ἐφ. Ἀρχ.* 1885, p. 198, No. 102; *C.I.L.* Suppl. pars prior, p. 1311, No. 7266), is connected with the Cottius who dedicated to Augustus the arch at Susa, in Italy. The priests at Epidaurus probably wished it to be believed that the distant Gallic king had dedicated a carved block of solid gold. All the articles here published contain many discussions of details and of matters connected with the chief subjects of investigation. (I. N. Svoronos, Νέαι Ἑρμηνεῖαι ἀρχαίων Ἀναγλύφων, ἀποσπάσματα ἐκ τῆς συγγραφῆς "Τὸ ἐν Ἀθήναις Ἑθνικὸν Μουσεῖον." Athens, 1910, Société hellénique d'éditions. 71 pp.; 5 pls.; 24 figs.; 4to.)

An Athlete's Gravestone. — Two drawings from the early seventeenth century sketch-book in the library at Windsor Castle are reproduced and discussed by W. AMELUNG in *Jb. Arch. I.* XXIV, 1909, pp. 191-194 (2 figs.). They show in its complete state the stele with palaestra scene, a fragment of which, now in the Vatican, was published by the same critic, *ibid.* XVIII, 1903, pp. 109 f., and in *Vat. Cat.* II, No. 421. These drawings show that the boy originally held a strigil and leaned against a low pillar over which hung some drapery.

Votive Relief from Phalerum. — In *Ἐφ. Ἀρχ.* 1909, pp. 239-264 (2 pls.; 3 figs.), B. STAËS publishes a remarkably beautiful votive relief of about 400 B.C. (Fig. 1); its inscribed pedestal; the inscribed pedestal of the votive relief of Echelus (cf. *Ἐφ. Ἀρχ.* 1893, pp. 109 and 129, pls. 9-10; Svoronos, *Reliefs of the National Museum*, p. 120, pl. 28), which closely resembles the new relief in style and workmanship; and the boundary stone of a precinct dedicated to Hestia, Cephisus, Apollo Pythius, Leto, Artemis Lochia, Ileithya (*sic*), Achelous, Callirrhoe, Geraestae Nymphae



FIGURE 1.—VOTIVE RELIEF FROM PHALERUM.

Genethliae, and Rhapsö. All these were found in what appears to have been the ancient bed of the Cephissus, in the space between the Long Walls to Piræus, about 800 m. from the shore of Phalerum. The relief was dedicated by Xenocrateia of the deme *Χολειδῶν* to the river-god Cephissus

διδασκαλίας τόδε δῶρον, an expression difficult to interpret. It was set up during the tenure in office of certain *τελεσταί*, a class of religious officers hitherto unknown to us. The author offers the following interpretation of the relief itself: Xuthus, consulting the Delphic oracle in regard to offspring, meets Ion, the child of his wife, Creusa, by Apollo. The figures from left to right represent Apollo sitting on a throne in the form of a



FIGURE 2.—MARBLE HEAD FROM CHIOS.

tripod, his feet resting on the Omphalos, beside which stand two eagles; Leto; Artemis; the Pythia, partly covering the figure of Artemis; Ion; Xuthus; (the scene then changes to Attica) Hermes; four Nymphs; a statue of Artemis (or possibly Eileithyia); a river-god, Achelous (or possibly Cephissus). The place of discovery is probably the Nymphaeum near Piraeus (cf. Wilhelm, *Jh. Oest. Arch. I.* V, p. 129, line 18, and Schoene, *Gr. Rel.* II, 28, 117).

Attic Gravestone in Southern Italy. — A gravestone of *aedicula* type, with the standing figure of a woman to whom a little girl is offering

some object, and with the surmounting inscription *Καλλίστη Φιλίππου τοῦ Ῥησιμάχου Γαργετίου γυνή, Λαυδίκη καὶ Εὐτυχία τὸ ἐπίσταμα*, is believed by P. ORSI to be truly Attic, and of a time later than the fourth century B.C. But it was found near Caulonia. Orsi believes it to have been brought there from Greece, perhaps in the second half of the fifteenth century, when swarms of Greeks and Albanians established themselves in Sicily, and not at all to indicate that demes like those of Attica existed in ancient Caulonia (which, he incidentally points out, must have been at some distance from the present Caulonia, which has borne that name only since 1860, having been called in mediaeval times Castel Vetere, doubtless from some Byzantine or Norman castle in the neighborhood). Lenormant (*La Grande Grèce*, II, pp. 271-273) has already pointed out that a Greek inscription revered at Catanzaro by the inhabitants as a witness of their ancient origin is also an importation from Athens. (*Not. Scav.* 1909, pp. 327-330; fig.)

The Head of a Goddess from Chios.—The Boston Museum of Fine Arts has recently received as a gift the remarkable head of a goddess (Fig. 2) said to have been found in Chios at the time of the Crimean War. The head was published in *Ant. Denk.* II, pl. 59, and has been discussed in *Jb. Arch.* I. XXIV, 1909, pp. 73 ff. (*A.J.A.* XIV, pp. 221-222) and elsewhere. It is undoubtedly an original Greek work and exhibits the manner of Praxiteles. No satisfactory name has yet been found for it (*B. Mus. F. A.* VIII, 1910, pp. 11-12; fig.).

A Heracles Head in Berlin.—In *Ber. Kunsts.* XXXI, 1910, cols. 197-200 (fig.), B. SCHRÖDER publishes a colossal marble head of Heracles found in three pieces in the Byzantine wall on the south side of the citadel at Pergamon and now in the Berlin museum. The head is bearded and of mediocre workmanship.

The Laocoön Head at Brussels.—In *Mon. Piot*, XVI, 1909, pp. 209-222 (2 pls.; 10 figs.), F. DE MÉLY publishes the fine Laocoön head in the possession of the Duke of Arenberg at Brussels and concludes that it is not ancient, but the work of Michelangelo. He also discusses briefly the documents relating to the discovery of the Vatican group.

The Mercury di Ingenuo and the Perseus of Myron.—In *Rend. Acc. Lincei*, XVIII, 1909, pp. 368-397, G. CULTRERA, in identifying the Mercury di Ingenuo of the Vatican Museum with the Perseus of Myron reviews many of the works attributed to this artist, as well as a large number of the known statues of Hermes. The wings on the head of the Mercury and his chlamys, which some regard as a later addition, he considers to be an essential part of the original "Perseus."

A Heracles of Polyclitus.—In *R. Ét. Anc.* XII, 1910, pp. 1-9 (pl.; 5 figs.), S. REINACH publishes a bronze statuette formerly in the collection of W. Rome in London and now supposed to be in Vienna. It is 9½ inches in height and represents a beardless Heracles standing nude with his weight resting on his right leg and his right hand on his hip. He wears the lion's skin on his head with the fore paws tied about the neck. The left hand held an object now missing. The writer suggests on the basis of a statuette at Würzburg that this object was part of the skin of the hydra. As the figure is clearly Polyclitan it is not unlikely that it reproduces the Heracles with lion's skin and the spoils of the hydra which Cicero (*De*

Oratore, II, 16, 70) implies was in Rome in his time and the work of Polyclitus.

Demetrius Poliorcetes and the Victory from Samothrace.—In *R. Arch.* XV, 1910, pp. 132-138, J. HATZFELD, after calling attention to the fact that the type of the Victory from Samothrace occurs, not only on the well-known coins of Demetrius Poliorcetes, but also on coins of many other places and on other monuments, calls in question Benndorf's generally accepted theory that the great statue was set up by Demetrius to commemorate his naval victory off Salamis in Cyprus. Samothrace formed part of



FIGURE 3. — MARBLE STATUE FROM ANTIVM.

the kingdom of Lysimachus, who was always an enemy of Demetrius, though at that time the two were not actually at war. The victory was gained over Ptolemy, an ally and friend of Lysimachus. It is, therefore, not likely that it was commemorated by a statue set up at Samothrace. A fragmentary inscription, found by Champoiseau in 1891 at the site where the statue was discovered, bears the letters ΣΡΟΔΙΟΞ, and may well be part of the dedicatory inscription or the artist's signature. Samothrace and Rhodes were closely associated, and the probability that the statue is a Rhodian monument is great.

The Maiden of Antium.—In *C. R. Acad. Insc.* 1910, pp. 40-48, P. GAUCKLER discusses the priestess of Antium (Fig. 3) recently acquired by the Museo delle Terme (see *A.J.A.* VIII, p. 307; XI, pp. 356 and 460; XII, p. 224; XIV, p. 222). He argues that the head and right shoulder are of much better workmanship than the rest of the statue; and furthermore that they are of a pure white, translucent marble, while the body is of an opaque marble. The two parts do not fit together well. The head and shoulder alone are Greek

work; the rest of the statue is a Roman restoration. The writer cannot decide whether the figure represents a youth or a maiden. In *Boll. Arte*, IV, 1910, pp. 41-48 (4 pls.), D. COMPARETTI argues that the statue represents Cassandra. Mrs. Arthur Strong declares it to be not a maid, but a boy, probably a *gallus*, priest of Cybele. Others, among them Simonetti (who arrived at this conclusion independently; see *La Tribuna*, end of December, 1909), agree. (*S. R., R. Arch.* XIV, 1909, p. 472.)

The Maiden Athlete in the Vatican.—The well-known statue in the Vatican of the maiden athlete at the start of the foot race at Olympia, according to the usual interpretation, is rather to be understood as a victorious Dorian *danseuse*, according to BRUNO SCHRÖDER (*Rom. Mitt.* XXIV, 1909, pp. 109–120; 6 figs.).

The Statues of Mausolus and Artemisia.—The position of the two surviving statues from the Mausoleum is discussed by J. B. K. PREEDY in *J.H.S.* XXX, 1910, pp. 133–162 (10 figs.). Reviewing the arguments previously cited for and against the placing of these statues in the crowning chariot, he finds that while the evidence of proportions is negative, the height of the male figure corresponding very well with that of the horses and of the wheels, so far as Asiatic usage is known, that of technique is absolutely against such a location, for the front of both statues is very carefully planned and executed down to the very ground, while the backs, which would alone be easily seen in the chariot, are comparatively ugly in design and very superficially treated. The figures must then have stood against some wall, perhaps the north side of the podium below the pyramid, whence they were carried down by the horses falling from above when the chariot group was dislodged by an earthquake. Finally, there is no reason whatever for supposing that the female statue represents Artemisia, since the finding of several similar heads shows that it was not unique; and although the male statue is certainly of royal dignity, it stood on one of the less important sides of the building, and may have represented any other of the princes of the family rather than the one in whose special honor the monument was erected.

The Amazon Frieze of the Mausoleum.—In *Jb. Arch. I.* XXIV, 1909, pp. 171–191 (2 pls.; 4 figs.), P. WOLTERS and J. SIEVEKING discuss the Amazon frieze and make an assignment of parts to the four artists somewhat different from that of Brunn. In this the types of horses, the draperies, attitudes, and grouping are all considered. In the work of Scopas alone is found the fullest originality and force. The style of Timotheus is compared with the sculptures from Epidauros, that of Leochares with Alexander's Hunting, and that of Bryaxis with the triangular base at Athens. To Bryaxis is assigned the doubtful Genoa relief which so closely resembles the Mausoleum frieze.

The Gaul of Delos.—In the museum at St. Germain the casts of a head in the museum at Delos (formerly at Myconos) and of the torso of a Gaul found by the sacred lake at Delos have been put together, with a result which proves that head and torso belong to separate statues, though several archaeologists have believed (cf. *R. Critique*, 1909, i, 282) that they belonged together. (*S.R., R. Arch.* XIV, 1909, pp. 465–466; 2 figs.)

Niobids.—In *Sitzb. d. Heidelberger Akad. d. Wissenschaften*, 1910 (6te Abh., 31 pp.; 4 pls.; 15 figs.), R. PAGENSTECHER publishes two terra-cottas from Canosa, now in the Reimers collection in Hamburg, and an Arretine sigillata vase now in Heidelberg. Figures of Niobids are represented. The terra-cottas from Canosa were originally placed on a large vase. They reproduce, with variations, motives of works of sculpture. The Arretine vase copies earlier sculpture. The various figures of Niobids previously known are discussed. The Florentine Niobids probably belonged to a building, and were perhaps arranged between the columns; they may, however,

have stood together on a large base. The group is regarded as a work of the fourth century B.C.

VASES AND PAINTING

Trick Vases and Vases for Dipping Wine. — In the *Bulletin de l'Institut national genevois*, XXXVIII, 1909, pp. 207-233 (16 figs.), W. DEONNA discusses those vases in which simple principles of hydraulics are employed to produce peculiar results. Some of them are simply trick vases (*vases à surprise*), but most of them had a practical purpose; for instance, the vase could be filled from the bottom by plunging it into the liquid, and by stopping the upper orifice with his thumb whoever held the vase could keep the liquid from flowing out. In this way wine and water could be mixed and served. In other vases more elaborate arrangements enabled one to serve different liquids from the same vase, etc. These vases are classified in accordance with their internal arrangement. They are dated from pre-Hellenic to Roman times.

The Painted Sarcophagus of Hagia Triada. — In *Jb. Arch. I.* XXIV, 1909, pp. 162-170 (4 figs.), E. PETERSEN explains the scenes on the painted sarcophagus of Hagia Triada (*A.J.A.* XIII, pp. 209, 496-497) as a myth of the Seasons, naturally associated with human life and death. Many of the details, such as the cuckoo-god mating with the earth-goddess, are preserved in Hellenic mythology down to the time of Pausanias. In *Jh. Oest. Arch. I.* XII, 1910, pp. 305-318 (4 figs.), H. SITTE criticises the drawing on the sarcophagus and shows that there was a definite attempt at perspective.

The Necropolis on Salamis. — In *Ath. Mitt.* XXXV, 1910, pp. 17-36 (2 pls.; 31 figs.), S. WIDÉ describes the objects, chiefly vases, found in graves excavated on Salamis in 1893 (Cavvadias, *Les Musées d'Athènes*, pp. 25 ff.). The pottery shows a transitional style between the Mycenaean and the geometric. The occurrence of similar vases at Athens, Nauplia, Mycenae, Assarlik, and in Crete shows that they were made at a time when the Mycenaean trade routes between the coast of the mainland and the islands were still in use.

The Dating of "Cyrenaic" Vases. — In *J.H.S.* XXX, 1910, pp. 1-34 (15 figs.), J. P. DROOP gives a brief classification of "Cyrenaic" vases, now known through the finds at Sparta to be Laconian, with an analysis of the characteristics, so far as they affect the dating, of all known examples found outside of Sparta. The entire duration of the ware, 700-350 B.C., is divided into seven stages of development and decline, of which the exported vases, found in Samos, Ephesus, Naucratis, and many other sites, belong chiefly to classes III and IV. The earlier and later styles are first known through the finds at Sparta. The distinguishing marks of early date are entire white slip, a thin, sharp edge on the foot, and use of purple paint. The system of decoration as a whole is derived from geometric, and the forms are from metallic originals; the question of Ionic and other Oriental influence needs further study. Certainly the cylix had an independent development in Laconia, from the low bowl without foot. The Athenian vase painter Nicosthenes evidently knew and imitated this ware, and there is a whole class of Attic cylices of a less ambitious character that were made for commercial competition with it.

A Funeral Amphora from Delos. — In *Mon. Piot*, XVI, 1909, pp. 25-37

(pl.), F. POULSEN publishes a fragment, 0.60 m. high, of a large funeral amphora found at Delos in 1906. The decoration consists of parallel lines, bands of conventional lotus flowers, a braided pattern, etc., and one broad band adorned with human figures and animals. The only complete amphora of this size and style known to the writer was found at Thera; but several fragments came to light in Delos, and many small amphorae of the same style were found at Rheneia among the contents of the Delian tombs removed by the Athenians in 426 B.C. The vase probably dates from the seventh century B.C. and was made on one of the Cyclades.

Panathenaic Amphorae.—In his *Die Panathenäischen Preisamphoren* (Leipzig und Berlin, 1910, B. G. Teubner, 180 pp.; pl.; 37 figs. 8vo. M. 6), G. VON BRAUCHITSCH publishes a study of the Panathenaic amphorae. He catalogues 130 numbers, including fragments. Their chronology, shape, and decoration, the costume of Athena, the columns and their emblems, the shield devices, inscriptions, the back side of the vases, their technique and destination, and the figure of Athena are discussed in turn.

Vases with Scenes from the Homeric Poems.—In *Mon. Piot*, XVI, 1909, pp. 99–136 (5 pls.; 9 figs.), E. POTTIER shows that in early Greek vase paintings the artist took the figures which he had inherited from the past and used them to illustrate scenes from the Homeric poems. He had heard the poems recited, but used his imagination when he tried to depict scenes from them. Thus the vases are not good evidence for the character of the poems in early times; but they show how knowledge of them became wider during the seventh century B.C. In the fifth century the paintings approached more closely to our text. The writer discusses several vases which lead him to these conclusions.

The Ransoming of Hector.—A fragment of a large vase, found at Naucratis in 1903, shows the lower half of a nude body lying stiffly on the ground, with portions of a couch and table near the feet. It is evidently from a picture of Achilles reclining at table receiving Priam. The subject is not uncommon, occurring first in bronze reliefs with the figures standing, but only two other examples are known of this "banquet" type. In view of Pollak's belief (*A.J.A.* III, 1899, p. 305) that this was essentially an Attic type, it is of interest to note that the Naucratis fragment is apparently from Asia Minor and perhaps from Clazomenae. (H. L. LORIMER, *J.H.S.* XXX, 1910, pp. 35–37; fig.)

The Shade of Achilles.—In *Ausonia*, IV, 1909, pp. 26–30 (fig.), N. TERZAGHI discusses the winged warrior in full armor flying over a ship, which appears on one side of a black-figured amphora in the British Museum (Walters, *Catalogue*, II, 154). He argues that it represents the shade of Achilles as imagined by Euripides (*Hec.* 110–112), and that the artist had in mind a passage in the *Little Iliad*.

A New Illustration to the Iphigenia in Tauris.—In *Jh. Oest. Arch.* I, XII, 1910, pp. 318–326 (2 figs.), V. MACCHIORO publishes a crater of unknown provenance in the museum at Pavia, but evidently of Cumaean manufacture. On one side stands a woman in the dress of a priestess at the right, towards whom a youth with his hands bound behind his back advances. A third figure follows holding a rope attached to the prisoner. The writer interprets this as a scene from the *Iphigenia in Tauris* of Euripides (ll. 469 f.), where Iphigenia orders the prisoners unbound.

The Sacrifice of Iphigenia.—In *Ausonia*, IV, 1909, pp. 98-108 (pl.), M. M. MICHELA discusses the monuments illustrating the sacrifice of Iphigenia and their relation to the famous painting of Timanthes.

Dancing on Greek Vases.—In *R. Arch.* XIV, 1909, pp. 351-369 (10 figs.), MARCELLE AZRA HINCKS discusses some representations of dancing on early Greek vases, and compares them with the dances of primitive peoples in modern times. The dances are expressions of erotic and (less frequently) warlike emotions.

Cleophrades.—A descriptive list of thirty-five severe red-figured vases assigned to Cleophrades, with nine others copied from or influenced by him, is given by J. D. BEAZLEY in *J.H.S.* XXX, 1910, pp. 38-68 (9 pls.; 4 figs.). Cleophrades was primarily a maker of large vases, amphoras, hydrias, and especially the calyx-crater, and his style is distinguished by



FIGURE 4.—VASE WITH LATIN INSCRIPTION.

massive figures with large heads, aquiline nose, and certain peculiarities of ear, breast-lines, etc. The lesser details were modified in the direction of simplicity in his middle and later periods by his experience in painting some smaller vases. He was the contemporary of Duris, and most probably a pupil of Euthymedes and master of Epictetus. Hartwig's ascription of his vases to an "Amasis II" is due to a misunderstanding of one of his few signatures.

An Attic Vase Inscription.—In *Hermes*, XLV, 1910, pp. 158-159, P. JACOBSTHAL argues that the inscription on one side of the Europa vase in Würzburg (Gerhard, *Auserl. Vasenb.* Pl. XC), read by Gerhard as Εὐρώπ[ε]α Ποσειδάδης, should be read Εὐρώπ[ε]α, ταῦρος ἀναίδης.

The Vagnonville Vase Again.—In *Jh. Oest. Arch.* I. XII, 1910, Beiblatt, cols. 209–214 (fig.), J. DURM argues that the circles on the base of the mound on the Vagnonville vase (see *A.J.A.* XII, p. 228; XIII, p. 211) represent stoke holes such as are found in lime kilns, but on a monument of this sort they may be merely symbolical.

Vases painted in Greek Technique, with Latin Inscriptions.—In *Mél. Arch. Hist.* XXX, 1910, pp. 99–116 (2 pls.; fig.), CHARLES PICARD publishes two “*coupes à pocolom*” (Fig. 4) in the Vatican museum and a fragment of a large vase in the Kircher Museum. He concludes that these vases—all of Greek technique, with Latin inscriptions—were probably made in Campania, about the middle of the third century B.C. or slightly earlier, the fragment being earlier than the *pocolom* vases. They exhibit the influence of Tarentum upon Roman taste even after Tarentum was conquered.

Apollodorus ὁ σκιαγράφος.—That the question of the time at which the Greeks attained a full knowledge of perspective in painting depends largely upon the meaning of the word *σκιαγραφία* as applied to the art of Apollodorus, and that too narrow a meaning has been given it by modern writers, are the points argued by E. PFUHL, chiefly by citations from Plato, in *Jb. Arch.* I. XXV, 1910, pp. 12–28. He finds that *σκιά*, far from expressing only a contrast of dark and light, meant rather any representation or reflection of an object as compared with the object itself, and that *σκιαγραφία* in the fourth century expressed both parts of the modern “perspective,” i.e., angular decrease in size and variation in depth of color due to position.

The Paintings of Panaenus at Olympia.—One further suggestion for the arrangement of the pictures around the throne of Zeus at Olympia is made by C. H. TYLER in *J.H.S.* XXX, 1910, pp. 82–84. In each of the three groups of three scenes which Pausanias gives as on the screens under the back and sides of the throne, the first scene mentioned concerns Heracles. As his relation to the site requires special prominence for his adventures, it is probable that in each case the picture of Heracles was larger than the other two and in some way separate from them. It may, therefore, have stood below the crossbar on which the battle with the Amazons was sculptured in relief, while the other two pictures, dealing with emotional manifestations of divine power, came side by side above the crossbar, and so next to the kindred subject of Niobe and her children, which was carved around the edge of the seat itself.

The Painted Stelae from Pagasae.—In *Ath. Mitt.* XXXV, 1910, pp. 118–138, G. RODENWALDT discusses the painted stelae of Pagasae. As regards subjects and composition they throw less light on Greek panel paintings than do the Roman frescoes, since they are strongly under the influence of the Attic grave reliefs of the fourth century; but they afford important evidence as to the technique of encaustic painting in Greece.

Landscape in Greek Art before Polygnotus.—The landscape elements in Greek art before Polygnotus are discussed in a monograph by Margret Heinemann. In “Minoan” art real landscapes are found in frescoes and in metal work. Mycenaean art survived in Ionia, where at Miletus, Mycenaean graves have been found, and the Homeric shield of Achilles, as well as the Hesiodic shield of Heracles, must be regarded as not purely poetic imagining. This is proved by various other things and also by the gold work from southern Russia. The landscape elements in the “red-ware pot-

tery," the Protocorinthian and Corinthian wares, the Cyrenaic vases, the Caeretan hydriae, the vases wrongly regarded by Dümmler as Pontic, and the Etruscan wall paintings are derived from Ionia. The same is true of the similar elements in Attic black-figured vase paintings. The red-figured vase paintings are more distinctly drawings than the black-figured paintings are, and exhibit fewer landscape features until the time of the crater from Orvieto. This has been connected with Polygnotus, who was from Thasos. Evidently this crater exhibits qualities hitherto unknown in Attic vase painting; but careful comparison with the other vases which show marked features of landscape and perspective leads to the conclusion that this vase is earlier than the rest and is pre-Polygnotan, as distinguished from the Amazon vase from Ruvo and other works of the class which may be called Polygnoto-Miconian. The discussion is careful, covering many details and embracing many monuments besides vases. (*Landschaftliche Elemente in der griechischen Kunst bis Polygnot*, von MARGRET HEINEMANN. Arbeiten aus dem Akademischen Kunstmuseum zu Bonn, II, 105 pp.; 17 figs. 8vo. Bonn, 1910, Friedrich Cohen. 4 mk.)

INSCRIPTIONS

The Disk from Phaestus. — In *R. Arch.* XV, 1910, pp. 1-65 (22 figs.), A. J. REINACH discusses 'The Disk from Phaestus and the Peoples of the Sea' (see *A.J.A.* XIII, pp. 78, 500; XIV, p. 226). The movements of the various tribes mentioned in Egyptian and other writings as inhabiting or attacking regions near the eastern Mediterranean are sketched, and the conclusion is reached that the disk from Phaestus indicates more or less close relations as early as the eighteenth century B.C. between Crete and the peoples (chiefly, at least, Indo-European) who appear in Egyptian writings as "Peoples of the Sea." The writing on the disk is closely related to that of the Hittites. In *Rend. Acc. Lincei*, XVIII, 1909, pp. 297-367 (4 pls.), A. DELLA SETA makes an exhaustive study of the signs on the disk and concludes that it was not a negative matrix for the reproduction of positive copies; that the writing runs from the outer edge to the centre first of face A and then of face B; that the writing has as its basis a two-sign nucleus to which prefixes and suffixes might be added, or which might be united with other similar groups; that the signs have a partly ideographic and partly phonetic value, the ideogram always having its value through its phonetic character, while determinative signs are wholly lacking; that, finally, the groups of signs separated by vertical lines are not separate words, but complexes expressing separate ideas. Because the signs differ so completely from the other Cretan pictographs, and because the heads with a feather crown are not found elsewhere in Crete but appear in representations of the *Pulasati*, whom he identifies with the Philistines, he thinks the disk not indigenous. It may have been brought from Cyprus, which was perhaps the original home of the Philistines.

A Rhodian Inscription. — In *Rend. Acc. Lincei*, XVIII, 1909, pp. 263-264, A. SOGLIANO corrects Roehl's interpretation of ἀγε on an amphora found in Rhodes as equivalent to ἔδωκε (φορμία ἡμί, ἀγε δέ με Κλιτομίας, *I.G.A.* 473). He compares [*amphora*] *recta* in an inscription published by him in *Not. Scav.* 1905, p. 257.

The Victory of Agias at Olympia.—In *Cl. Phil.* V, 1910, pp. 169–174, K. K. SMITH attempts to show that the date of the victory of Agias the Thessalian in the pancration at Olympia, recorded in an inscription at Delphi, should be placed in the year 460, thus filling the only lacuna in the Oxyrhynchus papyrus list of victors between 480 and 448, and making it necessary to date Pindar's second Nemean ode either before 480 or after 448.

Report of the "Treasurers of the Goddess."—In *Ἐφ. Ἀρχ.* 1909, pp. 197–210 (pl.), J. SUNDWALL publishes the inventory of treasure turned over by the outgoing *ταμίαι τῆς θεοῦ* of the year 344–343 B.C., of which *I.G.* II, 701, proves to be a part. The rather frequent occurrence of less than ten treasurers (eight here) may be explained by lack of candidates to fill vacancies caused by the rejection of certain members of the board at the *dokimasia*. The office of *ταμίης τῶν στρατιωτικῶν* is seen to have existed at least as early as 346 B.C. About thirty talents of *στρατιωτικά* appear to be a fund made up of part of the yearly surplus of the general treasury, a measure to be associated with Athenian plans for war against Philip of Macedon.

The Groups within the Attic Phratries.—In *Ath. Mitt.* XXXV, 1910, pp. 103–117 (3 figs.), A. v. PREMERSTEIN publishes a boundary stone in Athens (first published by D. M. Robinson, *American Journal of Philology*, XXVIII, 1907, p. 430), recording a mortgage on a piece of land in the deme Anaphlystus. Of the five mortgagees, one is an individual, the rest are groups. Two of the latter (*Γλανκίδαι*, *Ἐπικλεῖδαι*) are the members of *γένη* in a phratry which is not named. The other two (*φράτερες οἱ μετὰ Ἐρατοστράτῳ*, *φράτερες οἱ μετὰ Νίκωνος*) are *θίασοι* within the same phratry.

A Water-channel at Oropus.—In *Ath. Mitt.* XXXV, 1910, pp. 81–102 (4 figs.), H. LATTERMANN discusses exhaustively the inscription *I.G.* VII, 4255 (Dittenberger, *Sylloge*², 542; Michel, *Recueil*, 586), containing the specifications for the building of a stone channel to carry off the water from the men's bath at Oropus. With this he identifies foundations east of the sacred spring. An earlier short channel emptying into a neighboring stream proved unsatisfactory, because in stormy weather the level of the latter rose above that of the channel. This was obviated by the construction of the larger channel with a slighter slope, emptying into the stream above the high water level.

An Inscription from Rhamnus.—In *Ἐφ. Ἀρχ.* 1909, pp. 271–276, J. KIRCHNER publishes an inscription of the *Amphiaraistai* on a stele from Rhamnus, now in the National Museum at Athens, honoring the contributors to certain repairs made in the Amphiareum about 200 B.C. Some of the names may perhaps be identified with men already known; the names *Ὀνησιμίδης* and *Νεοπέδης* are met with here for the first time.

An Inscription from Gythium.—In *R. Ét. Gr.* XXII, 1909, pp. 405–409, P. FOUCART proposes a new restoration of the inscription concerning a public physician brought from Gythium by Leake in 1839 and now in the British Museum. (See *Ancient Greek Inscriptions in the British Museum*, No. 543.)

An Epigram from Imbros.—In the first part of an epigram from Imbros (*I.G.* XII, 8), A. WILHELM restores the defective *Π·ΟΞΠΟΛΙΗΝ* to *ἀπροσπολίην*, a new word, the two verses thus restored reading:

σώθη δ' εἰς πολλοὺς θρήνους μόνος, ἄθροα κλάσας
ὄρφανίην, εὐνήν, οἶκον, ἀπροσπολίην.

The man laments the death of his wife, his son, and the *πρόσπολος* of the house. (*Berl. Phil. W.* XXIX, 1909, col. 1646.)

A Sepulchral Inscription from Smyrna.—A sepulchral inscription from Smyrna, now in Athens, is published by E. NACMANSON, *Ath. Mitt.* XXXV, 1910, p. 177.

A Note on the Orphic Tablets of Corigliano.—In *R. Ét. Gr.* XXIII, 1910, pp. 58–61, R. PICHON points out that the expression *ἐριφος ἐς γάλ' ἐπετρον* in the Orphic tablets from Corigliano does not necessarily imply a bath of purification in milk, but that any liquid might be substituted and called milk.

Philip and the Surprise of Elatea.—The consternation with which the Athenians received the news of the capture of Elatea by Philip is explained by a newly discovered passage from Philochorus and by inscriptions found at Elatea and Delphi. It is now known that in the summer of 339 Nicaea was held by the Thebans. But Philip, by making friends with the Epicnemidian Locrians and the Phocians, was able to enter central Greece and capture Elatea without first making himself master of Nicaea. (G. GLORTZ, *B.C.H.* XXXIII, 1909, pp. 526–546.)

A Cypriote Inscription.—In *Sitzb. Berl. Akad.* 1910, pp. 148–164 (2 pls.), R. MEISTER publishes an inscription on a terra-cotta tablet, found not far from Jastriká, in Cyprus, and now in the possession of Sir Henry Bulwer. The tablet is nearly complete. It is inscribed on both sides. Evidently a festival was in prospect, and certain persons, mentioned by name, had presented funds for it. The inscription is in the Cypriote syllabary and is earlier than the fifth century. It offers some linguistic and palaeographic peculiarities.

Late Greek Inscriptions from Egypt.—In *Jh. Oest. Arch. I.* XII, 1910, Beiblatt, cols. 205–208, W. CRÖNERT suggests a number of corrections in the late Greek inscriptions published by Lefèbvre in *B.C.H.* XXVII, pp. 345–390, and in a few other Greek inscriptions from Egypt.

The Cult of Cybele.—A stone found in Sophia with a Latin and a Greek inscription relating to the cult of the Magna Mater, published by Filow in a Bulgarian periodical and in *Klio*, IX, pp. 253–259, receives a new discussion from O. WALTER, *Ath. Mitt.* XXXV, 1910, pp. 139–148 (2 figs.).

Γάιος Βαλληγνός.—Γάιος Βαλληγνός, the subject of two dedicatory inscriptions at Delos, has been identified by Boeckh with a Roman who failed to obtain the consulate as a result of Marius's holding of that office from 104 to 100 B.C. In *B.C.H.* XXXIII, 1909, pp. 443–444, P. ROUSSEL supports this identification.

A Mention of M. Junius Brutus.—In *B.C.H.* XXXIII, 1909, pp. 467–471, J. HATZFELD discusses an inscription from Delos, published *ibid.* III, 1879, p. 159, no. 7. One of the personages mentioned has been identified by Homolle as Q. Hortensius Hortalus, the son of the orator. The other, *Καιπίων*, described as his nephew, is Brutus, the murderer of Caesar, who was adopted by his maternal uncle, Q. Servilius Caepio. The inscription is to be dated in the months after February, 43 B.C.

COINS

Early Coinage.—The French translation of the lectures of I. N. SVORONOS on early money is continued in *R. Belge Num.* 1910, pp. 125–151

(fig.), where the λέβητες and τρίποδες of Crete are discussed (see *A.J.A.* XIV, p. 229). The English translation from the French is continued in *A. J. Num.* XLIV, 1910, pp. 14-21 (fig.).

Fifth Century Coins of Corinth.—Fifth century coins of Corinth are described and classified by C. OMAN in *Num. Chron.* 1909, pp. 333-356 (4 pls.). "The result of my later investigations does not in any way contradict the scheme of dates and periods which I laid down in the *Corolla Numismatica* in 1906], but it adds several subdivisions."

Coins of Sinope and Pella (Decapolis).—K. REGLING gives in *Num. Z.* 1909, pp. 15-18 (fig.), the result of an inspection of the coins of Sinope and Pella in the Berlin cabinet made in order to supplement or correct, in the case of Sinope, the *Recueil Général* of Waddington-Babelon-Reinach (Paris, 1904), and, in the case of Pella, to verify the pieces formerly in the possession of Reichardt.

The Gold Medals from Abukir.—At the May (1909) meeting of the Berlin Archaeological Society, R. WEIL added to his former discussion of the gold medals from Abukir (*Arch. Anz.* 1907, col. 402; *A.J.A.* XIII, p. 214; XIV, p. 229), the information that I. N. Svoronos, director of the coin cabinet at Athens and formerly the chief opponent of the genuineness of these medals, had withdrawn his doubts since having an opportunity to study the originals. The standing of the medals may, therefore, be considered as established. They are apparently prizes, νικητήρια, for the Alexandrian Olympic contests at Beroa in Macedonia. One of them confirms the belief that the emperor, Gordian III, was present at this festival in the autumn of 242 A.D. (*Arch. Anz.* 1909, cols. 555-558).

Stamp to Certify Fineness of Metal.—E. BABELON had believed that a certain square lead tessera with an impressed stamp bearing the words ΠΟΛΥΧΡΟΝΙΟΥ [or -OC] ΟΒΡΥΖΟΝ was a sort of tariff-weight to determine the amount of government seigneurage upon bullion presented at the mint for coinage (*R. Ital. Num.* XXI, 1908, pp. 45 ff.). W. KUBITSCHKE believes the tessera rather to be a mere proof-impression (possibly to be used for official verification) of a stamp to be impressed upon ingots of precious metal as official guaranty of their fineness. (*Num. Z.* 1909, pp. 33-37; figs.)

Portraiture on Coins.—'Portraiture and Its Origins in Greek Monetary Types' is the English title of an article by ERNEST BABELON, recently printed in the *Revue Numismatique*, and now translated in *A. J. Num.* XLIV, 1910, pp. 37-48.

Comets on Ancient Coins.—A French translation of an article on comets on ancient coins by DR. IMHOOF-BLUMER in the *Neue Zürcher Zeitung*, Feb. 19, 1910, is printed in *R. Suisse Num.* XVI, pp. 68-70.

GENERAL AND MISCELLANEOUS

The Discoveries in Crete and their Relation to Egypt and Palestine.—In *S. Bibl. Arch.* XXXI, 1909, pp. 280-285; 311-318 (3 pls.), H. R. HALL continues the series of articles on discoveries in Crete that have appeared in previous numbers of the same journal (*A.J.A.* XIII, p. 503; XIV, p. 230). He shows that from the Cretan civilization the Greeks derived their artistic spirit, and that without this foreign strain the Greek would have remained as much of a barbarian as other pure Indo-Europeans.

Crete and Cyprus owed nothing to the Phoenicians, but everything that was valuable in Phoenician art was borrowed from Crete. There is no archaeological evidence that there were any Semites in Cyprus before the eighth century, and this is an argument against the identification of Alashiya with Cyprus. All that the Phoenicians did was to disseminate their second-hand knowledge of Cretan civilization among the Greeks after the final fall of the Minoan culture. Phoenician colonies first appear in Cyprus in the time of Esarhaddon. There is no evidence of Babylonian influence upon the development of Cretan art. A vague influence may have been transmitted through Anatolia from Babylonia to Greece, but it was weak and intermittent, while Egyptian influence in the Aegean, and Aegean influence in Egypt have left many ineffaceable marks upon the art and civilization of both countries.

The Minos Legends.—In *Rh. Mus.* LXV, 1910, pp. 200–232, E. BETHE examines the legends connected with Minos in the light of modern archaeological discoveries. The association of the name with different places, as for example with Attica, the eastern coast of the Peloponnesus, Sicily, Gaza, etc., is evidence for the presence of Minoans at those places. Minos was the god of the Keftiu, and was represented as a bull. Hence the many bulls found at Knossos. His worshippers held bull fights in his honor, vague traditions of which have come down in the stories of Heracles and of Theseus and the twice seven youths and maidens. Minos and the Minotaur are the same god under different forms. His symbol was the double axe between bull's horns. In later times Minos became identified with Zeus Asterius. Theseus freed Attica of the dominion of the Keftiu, who must have been in power there in the fifteenth century B.C.

Minoan Religion.—In the first of a series of studies on the Minoan divinities, H. PRINZ (*Ath. Mitt.* XXXV, 1910, pp. 149–176) discusses the representations of a goddess in Minoan art. Five types,—(1) goddess holding her hands to her breasts, (2) goddess with dove, (3) with snake, (4) with lions, (5) with flowers, are clearly to be identified with the great Mother of the Gods, these attributes all occurring in representations of that goddess on Babylonian and Hittite monuments. The correspondence shows that the earliest population of Crete was of Asiatic stock. Other types of a goddess found in Crete cannot be connected with the same certainty with the Magna Mater.

Mycenaean Seals.—In *Ath. Mitt.* XXXV, 1910, pp. 178–182, G. KARO gives a brief classification of Mycenaean gems and rings (3000–1000 B.C.), on the basis of datable specimens.

Βοῶπις.—Some reflections of A. REICHEL on the primitive, “impressionistic” attitude of Creto-Mycenaean art toward the representation of nature, and the strongly contrasted, logical and orderly tendency of Hellenic art, with Homer standing on the threshold between the two, are illustrated by instances of the exaggeration of the eye as symbolic of the intellectual or spiritual element in human and divine (including bovine) nature. This is a constant feature in prehistoric Creto-Aegean art which lingered on in popular superstition at least to the time of the Attic red-figured eye-cylices. (*Jb. Arch.* I, XXV, 1910, pp. 9–12; 4 figs.)

Date of the Neolithic Age in Thessaly.—In *Arch. Anz.* 1909, cols. 406–415, A. JOLLES criticises certain conclusions reached by Tsountas in his

Prehistoric Citadels of Dimini and Sesklo (Athens, 1908), and calls attention to the fact that a given stage of culture reaches different regions at widely varying epochs. Tsountas, finding two stone periods, then a deep layer of accumulated earth, and then a bronze period similar to the Second City at Troy, infers that the last two civilizations are contemporary, in the third millennium B.C., and that the stone periods belong to the first and second halves of the fourth millennium. But a comparison of the pottery with that found at Zerelia would make the second stone period contemporary with one which is set by the English excavators in Thessaly at 2000-1800 B.C. Another doubtful point in Tsountas's otherwise very valuable book is the existence of a prototype of the Mycenaean megaron in the first stone period.

The Sanctuary of Phylacus at Delphi.—In *Εφ. Ἀρχ.* 1909, pp. 263-272, A. D. KERAMOPOULLOS discusses the topography of the precinct of Athena Pronaia and its relation to the site of the sanctuary of Phylacus, arguing that the latter was not situated along the lower road in front of the temples of the precinct, as Poulsen (*Acad. royale des sciences et des lettres de Danemark*, 1908, pp. 372 ff.) claims, but, according to Herodotus, VIII, 39 and Pausanias X, 8, 6 f. and the existing remains, must have been to the east of the precinct, behind and above it along the upper road, the modern carriage road.

The Gold Mines of Scaptesyle.—In *Klio*, X, 1910, pp. 1-27, P. PERDRIZET shows that the gold mines at Scaptesyle in Thrace were placer mines; that the large amount of gold which Herodotus (VI, 46) says the Thasians received from them represents the amount taken out during the first year or two after their discovery, and not the usual income at a later date; that the Athenians did not obtain possession of these mines after the reduction of Thasos, but that they were recovered by the Thracians.

Bronze Working.—In *Z. Bild. K.* XXI, 1910, pp. 219-224 (10 figs.), E. PERNICE describes briefly the methods of working bronze in antiquity by hammering, casting, engraving with bronze and later with iron tools, and damascening. He argues that the Greek artists strove to have their statues retain their original polish as long as possible, and that gilding was used to produce the same effect. A patina was never intentional on the part of the sculptor, but was something to be avoided.

The Trial of Phidias.—Under the title *Le procès de Phidias dans les chroniques d'Apollodore* (Geneva, 1910, Librairie Kündig. 50 pp.; pl.), J. NICOLE publishes two fragments of papyrus which once formed part of the lost *Chronica* of Apollodorus. They have to do with the trial of Phidias. They are much mutilated, but the writer is able to show from them that Phidias was accused of stealing some of the ivory for the Athena Parthenos, not gold, as Plutarch says; that the Athenians apparently sent to the northeast coast of Africa to obtain ivory for the statue; that after his accusation Phidias was released on bail, the Eleans depositing forty talents as security so that he might complete the statue of Zeus; that the famous owl of Phidias was dedicated on the Acropolis in the year 440-439. The book is discussed by F. STÄHELIN in the *Basler Nachrichten*, April 17, 1910.

Cremation among the Greeks.—In *La crémation et le séjour des morts chez les Grecs* (Brussels, 1909, Lamertin. 32 pp. Reprinted from *Mém. de la Soc. d'anthropologie de Bruxelles*, XXVII), J. DE MOR discusses cremation among the Greeks, arguing that it originated in an attempt to prevent the

spirit of the dead man from returning and troubling his relatives. The Egyptians had the same purpose in mind in making the burial chamber of the pyramids difficult of access; and the Babylonians in using jars of two pieces fastened together after the body had been placed inside. Water was also a barrier to return, but fire was the most effective preventive.

Greek and Etruscan Mirrors.—In *Proceedings of the Numismatic and Antiquarian Society of Philadelphia*, 1910, pp. 187–197 (8 figs.), J. C. ROLFE discusses ancient mirrors, especially those of the Greeks and Etruscans.

The τέτριξ.—In connection with the discussion of Hauser and Petersen as to the meaning of τέτριξ in Thucydides, I, 6 (see *A.J.A.* X, p. 457; XI, p. 225; XII, p. 233; XIII, p. 221), L. KJELLBERG argues (*Eranos*, IX, 1909, pp. 164–175) that it was really a golden wire wound about the hair.

A Catalogue of Dissertations.—G. FOCK has published a second edition of his catalogue of classical dissertations. Nos. 25725 to 27273 have to do with archaeology; and Nos. 27274 to 27395 with numismatics. (*Catalogus Dissertationum Philologicarum Classicarum*. Editio II. Leipzig, 1910, G. Fock. 652 pp. 8 vo. M. 7.20.)

Meurer's Ornament and Plant Forms.—At the April (1909) meeting of the Berlin Archaeological Society, M. MEURER's monumental work, *Vergleichende Formenlehre des Ornaments und der Pflanze*, was shown. It consists of two distinct publications, viz. a set of 250 large charts, ca. 40 × 30 inches, for use in classes and lectures, and a handbook, ca. 14 × 10 inches, containing reduced copies of the charts with many other illustrations and 600 pages of text. The handbook is intended for the use of artists and all interested in historic ornament, as well as for teachers. (*Arch. Anz.* 1909, cols. 548 f.)

Two Epigrams of Crinagoras.—In *R. Arch.* XV, 1910, pp. 139–141, G. ANCEY explains the last two lines of the epigram by Crinagoras, *Anth. Pal.* IX, 284, as a reference to the industry of grave-plundering at Corinth to satisfy the Roman taste for early bronzes and pottery. Another epigram, *Anth. Pal.* VII, 633, seems to give the date of the death of Cleopatra Selene, wife of Juba of Mauretania, by reference to an eclipse of the moon, which must be the eclipse of March 22, 5 B.C.

ITALY

ARCHITECTURE

The Baths of Agrippa.—In *Die Thermen des Agrippa* (Rome, 1910, Loescher & Co. 43 pp.; 4 pls.; 13 figs.), CH. HUELSEN publishes a study of the baths of Agrippa based upon the plans of Baldassarre Peruzzi, of Andrea Palladio, and the fragment of the Forma Urbis Romae found in 1900. The southern boundary of the baths was near the middle of the Corso Vittorio Emanuele. A restoration is attempted.

The Baths of Diocletian.—In *Boll. Arte*, III, 1909, pp. 401–405 (plan; 12 figs.), C. RICCI discusses the condition of the baths of Diocletian and the plan by which all modern buildings, except Michelangelo's Church of the Angels, will be removed. The structure will be one of the most conspicuous in Rome and occupied by the National Museum.

The Cella Soliaris in the Baths of Caracalla.—In the baths of Caracalla was a *cella soliaris*, the ceiling of which was supported by an invisible

frame of bronze (*Vita Caracallae*, IX, 4-5). The name *soliaris* is derived from *solium*. From African inscriptions (*C.I.L.* VIII, 10608, *Recueil de Constantine*, XL, 1906, p. 417, No. 377; p. 422, Nos. 48 and 411), Festus (s. v. *solia*), Palladius (*Agric.* I, 39, 3-4), and Celsus (I, 3, 4) it is evident that *solia* were individual bathtubs and *cella soliaris*, apparently identical with *caldarium*, the room containing the *solia*. (F. G. DE PACHTERE, *Mél. Arch. Hist.* XXIX, 1909, pp. 401-406.)

The Villa of the Quintilii.—In *Ausonia*, IV, 1909, pp. 48-88 (20 figs.; 4 plans), T. ASHBY gives an account of the excavations made at different times since the eighteenth century on the site of the villa of the brothers Quintilii five miles from Rome. He also discusses the evidence for the identification, and describes the extant remains.

Details of the Porta Aurea at Spalato.—In *Jh. Oest. Arch. I.* XII, 1910, pp. 340-342 (fig.), G. NIEMANN discusses the two niches at the sides of the Porta Aurea in the palace of Diocletian at Spalato, correcting the restoration of B. Schulz (*Jb. Arch. I.* XXIV, pp. 46 ff.; *A.J.A.* XIV, p. 237).

SCULPTURE

Archaic Statuettes in Pavia.—In *Ausonia*, IV, 1909, pp. 3-25 (8 figs.), V. MACCHIORO discusses two archaic bronze statuettes of unknown provenance for many years in the Civico Museo at Pavia. One is a very primitive nude female figure 8.6 cm. high in the attitude of the Venus pudica. It belongs to the Villanova period, and proves the existence of a religious sentiment among the Italians of that age which must have come into Umbria from the East. The second figure is male, 9.6 cm. high, standing stiffly with legs close together and arms hanging at a distance from the sides. A necklace of a triangular pattern is about the neck. The writer compares it with certain statuettes of Egyptian gods, and concludes that both figures represent divinities of generation.

Roman Reliefs.—Notes on various scattered fragments of Roman reliefs are published by W. AMELUNG in *Röm. Mitt.* XXIV, 1909, pp. 177-192 (pl.; 8 figs.).

The Heads in the Medallions on the Arch of Constantine.—In *R. Arch.* XV, 1910, pls. I-XVII (fig.; pp. 118-129), S. REINACH publishes the heads in the medallions on the Arch of Constantine from the casts in the museum at Saint Germain. He favors the opinion that the medallions relate to Hadrian. In a note, S. DE RICCI identifies heads No. 5 and No. 15 with Carus and Carinus (fig.). Reinach recognizes Antinous in head No. 17 and perhaps in No. 2. F. STUDNICKA, pp. 129-131, recognizes Constantine in Nos. 3 and 9 (medallions 1 and 3), and Carus in No. 5 (medallion 2), but not Carinus in No. 15 (medallion 4). He thinks the profile in medallion 4 may be Constantius Chlorus, but does not recognize Antinous anywhere with certainty. In the reliefs of the north side he concludes that the emperor is Trajan and that Hadrian is his companion.

PAINTING

Oscan Tomb Painting.—All that is known of painted tombs in Campania, Samnium, and Lucania, whether still preserved or, as in many cases, now lost, is brought together and discussed by F. WEEGE in *Jb. Arch. I.*

XXIV, 1909, pp. 99-141 (6 pls.; 15 figs.). He finds that the custom of painting the walls of tombs, as doubtless also of houses, was introduced into southern Italy by the Etruscans when they settled in Capua, Nola, and Paestum in the fifth century B.C.; that after their expulsion, during the fourth century, the art was developed on strictly national lines, though always confined to the wealthy; and that it died out under Roman domination. The scenes may be classed as, (1) funeral ceremonies; (2) the after-world; (3) daily life on earth. Striking features in the first class are the bringing home of the dead or dying warrior on his horse behind another rider; the display of the enemy's girdle and bloody shirt as trophies, illustrative of Homeric and other allusions; and the bloody duels fought by professional duelists at the grave, in which may be recognized the Oscan, not Etruscan, origin of gladiators at Rome and a reason for the always close connection of Capua with gladiators. The paintings also confirm Helbig's belief that the use of mounted warriors was introduced by the Greeks first into middle and southern Italy, and thence passed, about 300 B.C., to the Romans. In their equipment the same transition can be traced here that took place at Athens about 475 B.C. and later at Rome, from a species of heavy-armed dragoons, fighting on foot but provided with horses for quick movements, to regular light-armed cavalry, with helmet, lance, short whip, and spurs.

INSCRIPTIONS

Roman Inscriptions.—Among the many inscriptions from the city of Rome published in recent issues of *Not. Scav.* may be mentioned those to a professed Epicurean philosopher (1909, p. 303); and to an *ornatrix* and *aurifex de uico longo* (*ibid.* p. 311); a fragment of a *laterculus militaris* of a century of the tenth city cohort (*ibid.* p. 431); a sepulchral inscription of an *adiutor summarum rationum tabularii* (*ibid.* p. 432); a bronze inscription (found in the Tiber) to a *procurator praetorii Fidenatum Rubensium et Gallinarum Albarum* (*ibid.* pp. 433-436; 2 figs.); an inscription to a *tabularius mensorum aedificiorum*, and another to a *uilius saeptorum operarum publicarum* (*ibid.* p. 437). The region between the Via Sabaria, Via Pinciana, and Corso d'Italia continues to yield great numbers of sepulchral inscriptions (*ibid.* pp. 309 ff.; 454 ff.).

The Inscriptions of Gaionas.—In *B. Soc. Ant. Fr.* 1909, pp. 285-287, C. BRUSTON discusses the two inscriptions of Gaionas recently found on the Janiculum. The first he translates, "(This fountain has been erected) in order that the strict pledge which Gaionas, the *δειπνοκρίτης*, laid upon himself may furnish an offering to the gods." The *δειπνοκρίτης* was a sort of toastmaster, who led the conversation, fixed the number of cups to be drunk, etc. The title was probably connected with that of *Κίστιβερ Πώμης* and of *Cistiber Augustorum*.

Hebrew Inscriptions from Benevento.—Hebrew inscriptions from the cemeteries of Benevento and Venosa are discussed by V. CASTIGLIONI in *B. Com. Rom.* XXXVII, 1909, pp. 75-96.

An Inscribed Bronze Disk from Egypt.—In *Röm.-Germ. Kb.* III, 1910, pp. 9 f. (2 figs.), A. VON DOMASZEWSKI discusses a bronze disk from Egypt, published by Rostowzew in a Russian periodical and belonging to the Golenischew collection. The disk is perforated, bearing in the centre

the wolf with the twins, with an inscription around it: **LEG VI FERR F C FEL**. By comparison with analogous objects the writer concludes that this was a girdle ornament, and reads the inscription: *Leg(ionis) VI ferr(atae) f(idelis) c(onstantis) fel(icis)*. The sixth legion "ferrata" was formed by Caesar. The wolf with the twins alludes to the Italian origin of the legion.

Latin Inscriptions in Baltimore.—In *The American Journal of Philology*, XXXI, 1910, pp. 25-42, H. B. WILSON publishes sixteen more Latin inscriptions at Johns Hopkins University (see *A.J.A.* XIII, p. 513).

Epigraphic Bulletin.—In their review of epigraphic publications for September-December, 1909 (*R. Arch.* XIV, 1909, pp. 489-533), R. CAGNAT and M. BESNIER give the text of 113 inscriptions relating to Roman antiquity, with notes on epigraphic publications and full indices. *Ibid.* XV, 1910, pp. 325-340, the review for January-April, 1910, contains the text of sixty-seven inscriptions, seven of which are in Greek, and notes on epigraphic publications.

COINS

Early Italian Coinage Systems.—A comparative summary in parallel columns of his own and Mommsen's theories on early Italian coinage systems is printed by E. J. HAEBERLIN in *Boll. Num.* VIII, 1910, pp. 33-37.

Gallic and Roman Republican Coins from Gerenzago.—At Gerenzago (Transpadana) a hoard of coins, already mentioned in *Not. Scav.* 1908, p. 360, proved to contain fifty-four Gallic coins (of which forty-three were imitations of Massiliote coins, with the legend **DIKOI**), and sixty-eight Roman republican coins (sixty-six *denarii* and two *quinarii*). These last were of thirty-four different types, ranging in date from the early years of the silver coinage to the end of the second century B.C., and including some rare types. (S. RICCI, *Not. Scav.* 1909, pp. 299-301.)

Last Copper Coinage of the Roman Republic.—Under the title, 'Last Copper Coinage of the Roman Republic,' M. BAHRFELDT describes (*Num. Z.* 1909, pp. 67-86; pl.) the coins of Cn. and Sex. Pompeius, Eppius, Cn. Piso, C. Clodius, Q. Oppius, and L. Atratinus, thus concluding a series of papers which all treat of the same general theme and have been published in periodicals and also separately, viz.: 'Roman-Sicilian Coins of the Republican Period' (*R. Suisse Num.* XII, 1904); 'Coinage of the Prefects of the Fleet under M. Antony' (*Num. Z.* XXXVII, 1905); 'Provincial Copper Coinage under M. Antony' (*Rev. Int. d'Arch. Num.* XI, 1908).

The Treasure of Boscoreale.—In *Le Musée*, VI, 1909, pp. 259-265, C. CANESSA classifies the gold coins found on the site of the villa of Maxima at Boscoreale in 1895. No coin is later than 78 A.D., and the fine condition of the coins of Galba, Otho, and Vitellius indicate that Maxima had begun to accumulate this treasure about the year 68 A.D.

Commemorative *Asses* and *Dupondii* of Augustus and Agrippa.—In *Riv. Ital. Num.* XXIII, 1910, pp. 21-31 (pl.), L. LAFFRANCHI assigns the commemorative *asses* and *dupondii* of Augustus and Agrippa to the proper years of their emission, basing his study chiefly upon their stylistic characters. The coins of Agrippa are demonstrated by him to have been issued for the most part during the reign of Caligula.

The *As* and the *Libella* of Volusius Maecianus.—The *as* and the

libella of Volusius Maecianus are discussed by M.-C. SOUTZO in *R. Belge Num.* 1910, pp. 152-165, who concerns himself also with an article on the *sestertius* recently published by G. DATTARI in the *Revue Numismatique*. According to Soutzo, the *as* of Maecianus has nothing to do with an actual coin, but is merely an expression for the fraction $\frac{1}{16}$; the *libella* is the true monetary *as* of the time of Maecianus; the *denarius* of Nero had the value of forty *asses*, and the *sestertius*, of ten *asses*.

Constantinian Coinage. — LORENZINA CESANO published in *Rend. Acc. Lincei*, XVII, 1908, pp. 237-256, an inscription of the year 323 A.D., found at Feltre, commemorating a memorial fund, from which the specified income is stated in terms of coinage. W. KUBITSCHKE points out that this inscription proves that the *siliqua* was coined before 323, instead of considerably later, as had previously been supposed, and that the existence of the *aureus* is here assignable to an earlier date than had before been proposed for it. Much other valuable discussion is included in the article. (*Num. Z.* 1909, pp. 47-66.)

Coins of Constantinus Iunior as Augustus. — An article by OTTO VOETTER pictures and describes precisely the issues of the various mints during the period 323-340 A.D., thus furnishing means, among other things, for determining the beginning and end of the coinage with the names of Helena, Fausta, and Theodora, and for discriminating between the emissions of Constantinus I and of Constantinus II. (*Num. Z.* 1909, pp. 1-14; atlas of 16 pls.)

Iuno Moneta. — In *Num. Chron.* 1910, pp. 1-12 (3 figs.), A. W. HANDS prints a summary with some discussion of ERNST ASSMANN's paper on *Iuno Moneta*, which was published in *Klio*, VI, pp. 477 ff. Dr. Assmann argues that the name *Moneta* came to the Romans from the Semitic *Machanat*, meaning "camp," which was found on the silver coins of Carthage current in Sicily and Italy before the Punic wars. Mr. Hands would still cling to the popular derivation.

Homonyms in Roman Mint-marks. — L. LAFFRANCHI continues his studies of the various styles in Roman coinage by emphasizing the importance of recognizing the especial style of a given imperial mint, even when its geographical site is changed. Only thus especially can the provenance of a given issue be determined, when mint-marks are liable to confusion through homonymity. Examples of the mode of decision are given from the mintage of Siscia, Serdica, and Cyzicus, of Ticinum and Treviri, of Alexandria and Antioch. (*Riv. Ital. Num.* XXIII, 1910, pp. 31-36; pl.)

The Bureau of Weights and Measures and the Office of the Mint in Imperial Rome. — The connection of the coin-types of *Aequitas* and *Moneta* leads R. MOWAT to an exhaustive discussion of the relation between the Bureau of Weights and Measures and the Mint, especially as made out from coins. (*Num. Z.* 1909, pp. 87-116; pl.; figs.)

Retouched Roman Medallions. — F. GNECCHI, in *Riv. Ital. Num.* XXIII, 1910, pp. 11-20 (pl.), deplors the destructive work of the burin of the seventeenth century and later restorers of Roman medallions, and gives some precise demonstration of the havoc wrought by their art. He is inclined to believe that at least a third of existing specimens show destructive traces of such operations.

Ancient Processes of Counterfeiting. — G. DATTARI combats, in *Boll.*

Num. VIII, 1910, pp. 3-4, 17-20, 49-56, the reasonableness of the suggestions advanced by M. PICCIONE in the *Monthly Numismatic Circular*, February, 1909, concerning the methods followed by ancient forgers in casting *denarii*, and proposes a theory of his own, proceeding also to answer objections brought by Piccione (*ibid.* June, 1909) against the views set forth by him in *Boll. Num.* VII, pp. 33-38 (see *A.J.A.* XIII, p. 514) on the subject of plated and dentellate Roman coins. See also the communication by Piccione in *Mb. Num. Ges. Wien*, VIII, 1909, pp. 19-22 (*A.J.A.* XIII, p. 502).

Chrysopolis. — W. KUBITSCHKEK condemns as a forgery of Luigi Cigoi a lead coin with the inscription *Chrysopolis Aquileia*, published by MAIRONICA in *Jh. Oest. Arch.* I. II, Beiblatt, col. 105. With this text Kubitschek goes on to trace the history of this city name in the Middle Ages, especially as connected with Parma. (*Num. Z.* 1909, pp. 38-46; fig.)

GENERAL AND MISCELLANEOUS

The Nuragic Temple of Sardinia. — In *Rend. Acc. Lincei*, XVIII, 1909, pp. 579-592 (6 figs.), L. MILANI gives a preliminary report on the nuragic temple discovered by Taramelli in Sardinia between Isili and Gergei near the mediaeval church of S. Vittoria. A round *puteus sacer* in the apse-shaped end of the temple, built of carefully cut stones, and having an approach by stairs to its very bottom, reminds him of the Temple of Romulus as recognized by him beneath the *lapis niger* of the Roman Forum. The sacrificial table, which has stone benches on both sides, he compares with a votive model of a Sardinian temple in the museum of Cagliari, and with a model of a ship in the same place, in order to connect Sardinian antiquities with Etruria, Crete, Lydia, Babylonia, and the Tower of Babel.

The So-called Palafitte of the Sarno. — In *Rend. Acc. Lincei*, XVIII, 1909, pp. 265-270, G. PATRONI controverts not only E. Pais's original idea (*ibid.* XVII, 1908, pp. 459 ff.) that he had discovered in the valley of the Sarno remains of lake dwellings, but also his later theory that the remains are those of a palisade. He is opposed to any further excavation in this place.

Oscan Dress and Armor. — The dress and military equipment of the Oscan tribes as illustrated by vase and tomb painting, terra-cottas and citations from Roman writers, are discussed by F. WEEGE (*Jb. Arch.* I. XXIV, 1909, pp. 141-162; 11 figs.) as a supplement to his article on Oscan tomb-painting (*ibid.* pp. 99 ff. See pp. 517 f.). Here he finds a Campanian origin for certain Roman usages and articles which have been credited to the Etruscans, such as the single broad stripe on the senatorial toga. The ordinary man's dress seems to have been a very short tunic, lengthened somewhat in front, to which a second still shorter shirt or a small mantle was added in cold weather. The women wore a long belted gown and a cloak clasped around the neck. Head-dresses varied with the locality. In armor, the development of the breast-plate made of three small disks is traced and connected with Livy's much discussed *spongia pectoris tegumentum* (IX, 40). The marked use of linen among the Samnites may have a ritual significance.

Lydians in Umbria. — In *Ausonia*, IV, 1909, pp. 89-97, V. COSTANZI argues against the probability of the story of Herodotus (I, 94) that Lydians settled in Umbria.

The Origin of the Romans. — In *Ann. Arch. Anthr.* II, 1909, pp. 187-193, T. E. PEET attacks the conclusions reached by Ridgeway and Conway as to the origin of the Romans and shows that they were a mixed race consisting of Ligurians and *terremare* people. It is not, however, possible at present to identify these elements with plebeians and patricians.

The Magna Mater and the Trojan Origin of Rome. — The connection between the cult of the Magna Mater and the legends of the Trojan origin of Rome, together with the importance which this cult had for the Roman aristocracy, are treated at length by S. AURIGEMMA in *B. Com. Rom.* XXXVII, 1909, pp. 31-65.

The Etruscan Language. — In *Memnon*, III, 1910, pp. 167-174, T. KLUGE argues that Etruscan is connected with the languages of the Caucasus and compares certain Etruscan words of which the meaning is known with Caucasian words. A better knowledge of these languages will aid in solving the Etruscan problem.

The Topography of Praeneste. — Further contributions to the topography and monuments of Praeneste, by D. VAGLIERI, may be found in *B. Com. Rom.* XXXVII, 1909, pp. 212-274 (11 figs.). He is inclined to place the Temple of Fortune on the upper site.

Ancient Remains at Cumae. — In *Boll. Arte*, IV, 1910, pp. 105-122 (18 figs.), E. GABRICI describes the ancient remains at Cumae, and gives a brief account of the excavations carried on there.

The Remains of Ferentinum. — An interesting account of the remains of ancient Ferentinum will be found in *Röm. Mitt.* XXIV, 1909, pp. 1-58, (4 pls.; 24 figs.). The author, T. ASHBY, of the British School in Rome, describes in great detail, and with abundant illustration, the remarkable masonry of the walls and acropolis of this ancient capital of the Hernici.

Roman City Gates. — Roman city gates form the subject of an elaborate and abundantly illustrated study by RUDOLF SCHULTZE in *Bonn. Jb.* CXVIII, 1909, pp. 280-352 (12 pls.; 16 figs.).

Shrine of Oriental Deities by the Grove of Furrina. — A full account of the excavations conducted between December, 1908, and June, 1909, in the now well-known sanctuary by the Grove of Furrina is given by A. PASQUI in *Not. Scav.* 1909, pp. 389-410 (plan; 14 figs.).

Little Bronze Wheels of La Tène III. — In *R. Arch.* XIV, 1909, p. 467, H. HUBERT republishes (after G. BASERGA, 'Tombe a Perledo,' *Rivista archeologica della provincia di Como*, 1908, pp. 13-21) a pair of little bronze wheels on their axle found, with other objects, in a Gallic tomb at Perledo. Baserga thinks the wheels may have supported a vase or other object. He assigns the tombs to the second century B.C., Hubert to a later period, La Tène III.

Sicilian Tombs. — Tombs and their contents, mainly at Licodia and Centuripa, representing the period of transition from Sicilian to Greek, are studied by P. ORSI in *Röm. Mitt.* XXIV, 1909, pp. 59-99 (26 figs.).

Roman Mile Stones. — In *Rec. Past*, IX, 1910, pp. 8-15, C. F. ROSS publishes a popular account of Roman mile stones, discussing their shapes, inscriptions, date, etc.

A Representation of the Catapult. — A new representation of a catapult is published by W. BARTHEL in *Röm. Mitt.* XXIV, 1909, pp. 100-108 (4 figs.). It is the impression of a gem, and pictures Eros tormenting the

unhappy Psyche, whom he has impaled upon the point of the arrow which he is about to fire from his catapult.

Ancient Lanterns. — Ancient lanterns are discussed by S. LOESCHCKE in *Bonn. Jb.* CXVIII, 1909, pp. 370-430 (9 pls.; 20 figs.).

Alexandrian Silverware. — Alexandrian silverware of the imperial period is treated at length by FR. DREXEL in *Bonn. Jb.* CXVIII, 1909, pp. 176-235 (4 pls.; 6 figs.).

The Development of Curia. — The development of *curia* out of rustic custom, and the relation of the word to *cohors, curtis* (mediaev.), etc., are traced by G. TOMASSETTI in *B. Com. Rom.* XXXVII, 1909, pp. 19-30.

The Via Salaria. — N. PERSICHETTI continues his studies of the topography of the Via Salaria in *Röm. Mitt.* XXIV, 1909, pp. 121-169 (7 figs.); and pp. 208-255 (7 figs.); with special reference to the environs of Rome and of Rieti.

The Portrait of the Emperor Maximinus. — A marble head of the Emperor Maximinus (235-238 A.D.), which has recently been acquired by the Berlin museum (*A.J.A.* XIII, p. 367), was discussed from the anthropological point of view by F. v. LUSCHAN at the May (1909) meeting of the Berlin Archaeological Society. He finds in the shape of the head evidence of the disease acromegalia, a belief that is supported by the literary tradition of the enormous height (over seven feet) and strength of the man. This disease especially enlarges the lower jaw and lengthens the head without greatly increasing the brain cavity. In its less advanced forms it is easily confounded with another abnormal type of face, which is especially familiar in the Hapsburg family as far back at least as Charles the Fifth, but, unlike the latter disease, it is not hereditary. (*Arch. Anz.* 1909, cols. 558 f.)

The Mattei Collection and the Museo Pio-Clementino. — In *Mél. Arch. Hist.* XXX, 1910, pp. 57-68, L. HAUTECEUR describes the circumstances of the sale of some of the antiques of Don Giuseppe Mattei to Pope Clement XIV, in 1770. This, in part at least, led to the establishment of the Museo Pio-Clementino, in the Vatican. Other antiques of the Mattei collection were sold to foreigners. A manuscript of Clement XIV containing a list of the objects bought by him is published (pp. 69-75).

A Sixteenth Century Panorama of Rome. — A panorama of Rome in 1550, drawn by Hendrik Van Cleef, is published for the first time by A. BARTOLI in *B. Com. Rom.* XXXVII, 1909, pp. 3-11 (pl.). The view is taken from the Appian Way, and shows imposing ruins of the Domus Aurea and of Trajan's Thermae in the foreground. The article is supplemented by J. ORBAAN, who gives a catalogue of drawings of Rome and its environs by Dutch masters, now in the Louvre and the British Museum.

The Annexation of Gaul. — In *R. Arch.* XV, 1910, pp. 93-103, G. FERRERO maintains that Gaul was annexed in 57-56 B.C. *Ibid.* pp. 104-106, C. JULLIAN replies in support of the date 51-50 B.C. The arguments on both sides are drawn from literary sources.

SPAIN

The Carved Stelae of León. — In *R. Ét. Anc.* XII, 1910, pp. 189-192 (pl.), J.-A. BRUTAILS argues that the source of the ornamentation found upon the stelae of León, Burgos, and in the upper valley of the Garonne is to be sought on the eastern shores of the Mediterranean.

Primitive Monuments of the Balearic Isles. — In *R. Arch.* XIV, 1909, pp. 333-350 (2 plans; 3 figs.), L. CH. WATELIN describes and discusses the primitive monuments of Majorca and Minorca. He ascribes the isolated talayots (towers) to the first period, various fortifications, cities, and isolated posts to the second, enclosures fortified with masonry of small stones and also square talayots with round interior to the third, talayots of Minorca, taulas (tables), hypostyle constructions, and naus or navetas to the fourth. Some other structures are of indeterminate date. His periods correspond to the First Bronze Age (Copper Age), the Second and Third Bronze Ages, and the Iron Age.

FRANCE

The Palaeolithic Remains of Amiens. — In *R. Ét. Anc.* XII, 1910, pp. 170-176 (pl.), V. COMMONT, dissatisfied with the classification of palaeolithic implements, presents briefly the results of his studies of the remains of the palaeolithic period at Amiens.

Crete and the Rhone. — In *Exp. Times*, XXI, 1910, pp. 303-305, J. R. HARRIS seeks to show from the proper names that the civilization of the Rhone valley was due in the first instance to colonies sent out from Crete.

The Treasure of Tayac. — In *R. Ét. Anc.* XII, 1910, pp. 21-46 (8 figs.), A. BLANCHET disputes the conclusions of R. Forrer that the treasure found at Tayac (Gironde) in 1893 was part of the spoils of the Cimbri and that from it something could be learned of their wanderings. He thinks that the coins are chiefly local and that they had nothing to do with the Cimbri.

Two Gallic Tetradrachms. — In *R. Ét. Anc.* XII, 1910, pp. 181-182 (4 figs.), H. DE LA TOUR calls attention to two tetradrachms in the Bibliothèque Nationale (Nos. 9910 and 9911) with a laureate head on the obverse and a horseman with triangular helmet on the reverse. They are probably the work of the Taurisci, and are the prototypes of a long series of imitations.

The Discoveries at Vieux. — In *M. Soc. Ant. Fr.* LXIX, 1909, pp. 225-335 (plan; 3 figs.), M. BESNIER discusses the topography of Vieux, the ancient Aregenua, and describes the discoveries made on the site from 1580 to 1899.

A Catalogue of the Mosaics of Gaul. — In *Inventaire des mosaïques de la Gaule. II. Lugdunaise, Belgique et Germanie* (Paris, 1909, Leroux. 233 pp. Svo.), A. BLANCHET completes his catalogue of the mosaics of Gaul. The second volume comprises Nos. 702-1675. The first volume described the mosaics in Gaul proper.

BELGIUM

Coins of the Atrebatas. — The Belgian tribe of Atrebatas coined gold in imitation of the types of similar coins of the Bellovaci, which were in turn imitated from the staters of Philip II, king of Macedonia (359-336 B.C.), that have a head of Apollo on the obverse and a *biga* on the reverse. The Vicomte B. DE JONGHE describes in *R. Belge Num.* 1910, pp. 245-251 (pl.), the successive degenerations of these types in the coins of the Atrebatas. The representations finally became fairly unrecognizable, except by tracing the steps of the process.

SWITZERLAND

Greek Vases at Bern.—In *R. Arch.* XV, 1910, pp. 217–239 (14 figs.), W. DEONNA describes four red-figured vases in the museum at Bern: (1) A pelike on each side of which a standing maiden offers an alabastron to a seated person, on one side a youth, on the other a maiden. On each side is the inscription *καλός*. The date is early in the fifth century. (2) A Nolan amphora. On one side the bearded Dionysus, before whom, in full front, with head in profile, is a dancing satyr. Inscription *Οιονοκλῆς* (or *Διονοκλῆς*) *καλός*. On the other side a satyr with a wine-skin; inscriptions *καλός* and *Ἀκεστορίδης*. The style is related to that of Brygos. A somewhat detailed discussion of the development of the front view in vase painting and relief sculpture is introduced. (3) Amphora; on one side a youth pursuing a young woman, on the other a youth and a bearded man; on the foot a *graffito* *ΞΕΙΝ*. The vase is not earlier than the middle of the fifth century, but the drawing retains noticeable archaisms. (4) Hydria. Apollo Citharoedus is represented holding out a phial toward a young woman who is preparing to fill it from an oenochoe. This vase may be identical with one formerly in Castellani's possession at Naples (*Bull. Napolitano*, VI, pl. 2; Reinach, *Répertoire des vases*, I, p. 474, 5–6; cf. Heydemann, *Annali*, 1870, p. 225). All these vases came from Naples.

An Apotropaion from Baden.—An archaic bronze apotropaion from the Swiss Baden (Aquae) is published by P. WOLTERS in *Bonn. Jb.* CXVIII, 1909, pp. 257–274 (2 pls.; 4 figs.).

GERMANY

The Origin of the Bossed Vases of the Stone Age.—In *Z. Ethn.* XLI, 1909, pp. 946–948 (discussion, pp. 948–950), C. SCHUCHHARDT claims a north German origin (the Semnones), for the prehistoric vases with four bosses. These, according to him, found their way down the Danube as far as Hungary (1200–900 B.C.) and Troy (800 B.C.), and not in the reverse direction. He thinks these sprang from prototypes influenced by basket-weaving, not, as vases in south Germany, from those which imitated gourds. The cross-influences of these classes are described, and the Rössen-, Gr. Gartach-, Hinkelstein-, and Spiral-meander-types characterized. Further, the Lausitz-type of the Bronze Age is by him vindicated for Germany, doing away thus with the Karpodacians, whom Götze and Kossinna suppose to have been its vehicle from southeast to northwest.

The Date of the Roman Settlement at Heddernheim.—In *Röm.-Germ. Kb.* III, 1910, pp. 23–29, G. WOLFF argues for a post-Augustan date for the Roman settlement at Heddernheim.

An Engraved Glass Cup from Trèves.—In *Bonn. Jb.* CXVIII, 1909, pp. 353–369 (3 pls.; 5 figs.), E. KRÜGER publishes an engraved glass cup from Trèves, with scenes from a combat with wild beasts in the arena, showing the employment of chariots.

The Brick Stamps of Vetera Castra.—The brick stamps of Vetera Castra are treated by P. STEINER in *Bonn. Jb.* CXVIII, 1909, pp. 246–256 (fig.).

AUSTRIA

The Invasion of the Marcomanni.— Finds of coins in Vienna and Siebenbürgen briefly described in *Mb. Num. Ges. Wien.* VIII, 1909, pp. 129 f., and by W. KUBITSCHKE in the *Austrian Jahrbuch für Altertumskunde*, 1909, point clearly to the fear caused by the invasion of the Marcomanni in the second century, and of the Carpi in the third.

GREAT BRITAIN

Early British Iron Currency.— In *Proc. Soc. Ant.* XXII, 1909, pp. 337-343, R. SMITH discusses an iron nail found near the earth-work called Cranborne Castle, Dorset; and an iron "currency bar" from Meon Hill, Gloucestershire. The nail, which is 7 inches long and $\frac{3}{4}$ inch square below the head, is like others found on other sites, and corresponds with the nails mentioned by Caesar (*B.G.* III, 13) as used by the Veneti in their ships. The iron "currency bar" is a good specimen of the money of the Britons in Caesar's time. It is $28\frac{1}{2}$ inches long and $\frac{1}{2}$ inch wide, and is probably one of a hoard of four hundred found in 1824. Its weight is $10\frac{1}{2}$ ounces avoirdupois. The writer examines the other known specimens and shows that they are of three sizes, with weights in the proportion of 1, 2, and 4. The presumed standard is 4770 grains or 309.74 grammes, that is, about 11 ounces avoirdupois.

Roman Pottery from Pudding-pan Shoal.— In *Proc. Soc. Ant.* XXII, 1909, pp. 395-413 (2 figs.), R. SMITH reports upon an unsuccessful attempt to find the Roman wreck on Pudding-pan Shoal in the Thames Estuary (*A.J.A.* XIII, p. 232). He also discusses the red Samian ware, which apparently came from this wreck, and publishes revised lists of the artists' names and the places where the fragments now are. All the potters mentioned, of whom anything is known, came from the Lezoux district in France.

Hoard of Denarii at Castle Bromwich.— GEORGE C. BROOKE describes in detail a find of *denarii* which had been buried in a small earthen pot near Birmingham. The lot numbered 199 specimens, ranging in period from Vespasian to Commodus, but including also six legionary coins of Mark Antony,—another indication that these debased legionary coins were not driven out of circulation by the reduction in weight of the *denarius* made by Nero (*Num. Chron.*, 1910, pp. 13-40; fig.).

AFRICA

The Inscription of Ifr'a.— In *R. Arch.* XIV, 1909, pp. 387-415 (8 figs.), BOULIFA publishes, describes, and discusses the Libyan inscription at Ifr'a (Ifri n Dellal; see *A.J.A.* XIV, 1910, p. 128). The neighboring regions are also described. At the rock of Ifri n Eddellal, on which the inscription is painted, there was probably a workshop of metal workers. Perhaps the inscription merely contains their names. A fragmentary stele, on which a man on horseback was once represented, was discovered by the writer at Thala-Gala.

Engraved Gems in Tunis.— In *M. Soc. Ant. Fr.* LXIX, 1909, pp. 194-224 (11 figs.), L. POINSSOT describes thirteen engraved gems found in Tunis, of which eleven are now in the Bardo museum.

The Cult of Silvanus in Africa.—In *Mél. Arch. Hist.* XXX, 1910, pp. 77–97 (pl.), L. CHATELAIN publishes the inscription from the plain of the Sers, in Tunisia (*C. R. Acad. Insc.* 1909, pp. 467–469; *A. J. A.* XIV, p. 128), a metrical invocation or hymn to Silvanus. The worship of Silvanus in Africa and his relations to Mars, Mercury, Jupiter, and other deities, as well as the metrical and linguistic peculiarities of the inscription, are discussed.

The Topography of the Battle on the Muthul.—In *Jh. Oest. Arch. I.* XII, 1910, pp. 327–340 (5 figs.; map), R. OEHLER discusses the topography of the battle on the Muthul described by Sallust, *Bell. Jur.* 48–54.

EARLY CHRISTIAN, BYZANTINE, AND MEDIAEVAL ART

GENERAL AND MISCELLANEOUS

The Mosaics of Saint Sophia at Salonica.—In *Mon. Piot*, XVI, 1909, pp. 39–60 (4 pls.; 13 figs.), C. DIEHL and M. LE TOURNEAU discuss the mosaics in the church of Saint Sophia at Salonica, which were cleaned and studied by Le Tourneau in 1907 (see *A. J. A.* XIII, p. 377). The signatures of the Emperor Constantine, the Empress Irene and Bishop Theophilus date the mosaics in the apse at the end of the eighth century. Beneath these is a cross and two liturgical inscriptions which formed the original decoration of the apse. They date from the fifth or sixth century. The Pantocrator in the centre of the cupola dates from the middle of the seventh century; while the Virgin and the Apostles in the zone below date between the end of the tenth century and the middle of the eleventh.

The Church of St. Demetrius at Salonica.—In *R. Arch.* XIV, 1909, pp. 380–386, O. TAFRALI concludes that the restorations of the church of St. Demetrius at Salonica (see *A. J. A.* XIII, 1909, p. 522) began about 634 and were speedily finished. The Leon under whom the restoration took place cannot be one of the emperors. Perhaps he was an eparch. The article is in part a reply to Uspenskij (in *Izvestija russkago archeolog. instituta v Kije*, XIX, 1, 1909, pp. 1–61).

A History of Byzantine Art.—Under the title *Manuel d' Art byzantin*, CHARLES DIEHL has produced a real history of Byzantine art. He discusses the origin of that art from Hellenistic and Oriental sources, its development in architecture, sculpture, painting (including, of course, mosaic), and the lesser arts, from the beginning through the first "Golden Age" in the sixth and the succeeding centuries, the second "Golden Age" in the ninth, tenth, and eleventh centuries, and the "Renaissance of Byzantine Art" in the fourteenth century to its virtual extinction in the sixteenth century. A great number of monuments of all kinds is cited, yet the fact is clearly recognized that Byzantine art is known to us "only by its débris." It may be that it produced few masterpieces, and it is certain that many points of its history are as yet obscure. "But one fact dominates all. In the whole Christian world, from the cupolas of Kief to the churches of Italy, Byzantium appears, throughout the entire period of the Middle Ages, as the great initiator; by the prodigious expansion of the art that she created, she has held an eminent position in the history of civilization, and for that reason, whatever its intrinsic merit, this art certainly deserves the attention and esteem of the historian." Very many points are discussed in greater or less detail. There

is an index, and bibliographical references abound. (CHARLES DIEHL, *Manuel d'Art byzantin*. Paris, 1910, Alphonse Picard et fils, xi, 837 pp.; 420 figs. 8vo. 15 fr.)

The Miniatures in the Alexandrian Weltchronik. — The thirteenth of J. WILPERT'S *Beiträge zur christlichen Archäologie*, in *Röm. Quart.* 1910, pp. 1-29, amounts to a review of Bauer and Strzygowski's publication of the papyrus fragment of an Alexandrian chronicle (*Denkschriften der k. Akad. der Wissenschaften in Wien*, Bd. LI, 1905). The fragment dates ca. 400 A.D. Wilpert makes several corrections in the description of the miniatures of the manuscript, and finds that in the use of the nimbus, and in the representation of gestures, the artist works quite in the manner of his Roman contemporaries, and that the miniatures are therefore no evidence of the originality of Oriental art, as Strzygowski maintains. The figure of Theophilus in one of the miniatures furnishes a valuable example of an early *pallium sacrum*, or *ὑποφόριον*, which here appears as a kind of neckerchief with the ends hanging over the shoulders on the breast.

Barbarian Helmets in Europe. — In *M. Soc. Ant. Fr.* LXIX, 1909, pp. 173-193 (6 figs.), Baron J. DE BAYE publishes a helmet found last year in the Frankish cemetery at Trivières (Hainaut) and discusses the barbarian helmets found in various parts of Europe.

A Door in the Madrasah of Barkūk. — In *J.A.O.S.* XXX, 1909, pp. 58-60 (2 pls.), R. J. H. GOTTHEIL describes the bronze door lately acquired for the Hispanic Museum in New York City, bearing an inscription of the Sultan Barkūk in the year 788 of the Hegira, and suggests that this door is a forgery made by a modern Arab workman in Cairo.

ITALY

Late Sarcophagi in Rome. — In *Röm. Quart.* 1910, pp. 90-96, F. DIBELUS assembles a group of three sarcophagi, one in the Lateran with Christian subjects, another in the Conservatori decorated with a shepherd's hunt of non-Christian character, and a third in the Lateran bearing the well-known vintage relief interspersed with three bearded "good shepherds." The close relation of technique between the three convinces him that they come from the same atelier, which, therefore, furnished sarcophagi for pagans and Christians alike.

Christian Sarcophagi and Pagan Reliefs. — Christian sarcophagi in their historical relation to the pagan reliefs are discussed by L. v. SYBEL in *Röm. Mitt.* XXIV, 1909, pp. 193-207.

Chronology of the Frescoes of S. Maria Antiqua. — In *L'Arte*, XIII, 1910, pp. 1-20 and 81-107, J. WILPERT discusses the period to which the various frescoes of the church of S. Maria Antiqua belong. He places the foundation of the church in the fourth century, but finds no painted decoration earlier than the end of the fifth, to which epoch he assigns the *Madonna regnia* on the wall of the niche which was afterward transformed into an apse. He groups the rest of the decoration of the church proper around the pontiffs Martin I, John VII, and Paul I. Hadrian I (772-795) and subsequent popes confined their attention to the atrium, from which it appears that the church itself was destroyed by the earthquake in the first year of the pontificate of Leo IV. The atrium continued to serve as a

church dedicated to St. Anthony, and was destroyed in the fire incident to the sack of Rome by Guiscard in 1084.

Ad Calice Benimus.—The phrase *ad calice benimus* occurring in a *graffito* discovered by De Rossi in the cemetery of Priscilla in 1888, was interpreted by him as referring to eucharistic rites held in the cemetery, the phrase admitting, according to him, the supplement: *ad calicem sumendum ornumus*. DE WAAL in *Röm. Quart.* 1910, pp. 97–98, suggests by comparing an inscription of Concordia, in which *calculus* is twice used qualified by *cereis*, that *calice* in the Priscilla *graffito* is to be restored *calices* (=candles), and the *ad calices ornumus* thus refers to the illumination of the catacombs for rites celebrated in honor of the dead, like the pagan *feralia*. So also the numerous *calices* mentioned as gifts to churches in the *Liber Pontificalis* are to be understood as lamps and not as eucharistic chalices.

Mediaeval Fortifications at the Foot of the Palatine Hill.—In *Rend. Acc. Lincei*, XVII, 1909, pp. 527–539 (3 figs.), A. BARTOLI writes of certain remains of mediaeval fortifications beneath the Barberini vineyard on the Palatine Hill. Two walls 90 m. long, with the space between filled with a composition of rubble and cement, and having a passage behind, formed a fortification either built by the Frangipani or made use of by them.

The Gothic Architecture of the Cathedral at Genoa.—The cathedral at Genoa was consecrated in 1118. A rebuilding was begun, in the French manner, in the middle of the thirteenth century. The French style is represented by the façade, but in the construction of the nave, in the fourteenth century, the style is less pure and the nave was finished in Lombard fashion. Choir and transept were transformed in the seventeenth century. (C. ENLART, *B. Soc. Ant. Fr.* 1909, pp. 291–293.)

A Mediaeval Church at Turin.—Recent excavations in Turin, between the Roman theatre and the left side of the cathedral, have brought to light the remains of an ancient church, probably S. Salvatore, destroyed in 1490 to make way for the present Duomo. The most notable find is a mosaic pavement of the twelfth century. The most important remains having been removed to the Museo Civico, the ruins were buried again. (P. TORSICA, *Boll. Arte*, IV, 1910, pp. 1–16.)

The Date of a Mosaic in S. Marco, Venice.—The mosaic representing the discovery of the body of St. Mark is divided into two sections, in one of which the Doge, clergy, and people kneel in prayer, and in the second are seen transfixed with astonishment when a pillar opens and discloses the body of the saint. In the first section, six men stand immediately behind the Doge, in the second there are only three. This dates the mosaic after the establishment of the Venetian constitution in 1173, when six councillors were appointed as a privy council to the Doge. The three dignitaries in the second portion represent the three procurators of S. Marco, a dignity established by the first Doge under the new régime, Sebastiano Zioni. (O. BÖHM, *Burl. Mag.* XVII, 1910, pp. 40–46.)

FRANCE

The Sarcophagus of La Gayolle.—In *R. Ét. Anc.* XII, 1910, pp. 16–20 (2 figs.), C. JULLIAN shows that the scenes carved on the sarcophagus from La Gayolle, now at Brignoles (Espérandieu, No. 40), are purely Christian

and not due to a mixture of Christian and pagan ideas. The visible remains at La Gayolle date from the third to the thirteenth century A.D.

The Temple of Lanleff. — In *R. Arch.* XV, 1910, pp. 212-216 (fig.), A. MARTIN pleads for the conservation of the "Temple" of Lanleff (canton of Plouha, Côtes-du-Nord), a circular Romanesque church, probably built by some returned crusader in rude imitation of the church of the Holy Sepulchre. A bibliography is appended.

Robertus. — In *R. Arch.* XV, 1910, p. 298, L. BRÉHIER reads R(o)tb(er)-tus (not Rittibitus, Rittbius, or Ritbius), as the name of the artist of one of the capitals of the choir of Notre Dame du Port.

The Seals of Roger de Gaignères. — In *M. Soc. Ant. Fr.* LXIX, 1909, pp. 42-158 (12 figs.), J. ROMAN discusses the seals chiefly of the eleventh, twelfth, and thirteenth centuries in the collection of Roger de Gaignères now in the Bibliothèque Nationale. He points out the characteristics of the artists who copied them and appends a catalogue.

Crowned Armorial Bearings. — Four crowned armorial bearings represented on French seals of the end of the thirteenth and beginning of the fourteenth centuries are published and discussed by MAX PRINET in *R. Arch.* XIV, 1909, pp. 370-379 (4 figs.). The seals are those of the city of Bordeaux (1297), of the bailiwick of the Mountains of Auvergne (1303), of the royal court of Montferrand (1315), and of the parliament of Brittany (1315). It has been believed that armorial seals surmounted by a crown were not used until the middle of the fourteenth century.

The Lilies of France. — In *B. Soc. Ant. Fr.* 1909, pp. 283-285, M. PRINET traces the history of the three lilies on the arms of "modern France," and shows that they occur as early as 1228.

Two Gratings in the Musée de Douai. — In *M. Soc. Ant. Fr.* LXIX, 1909, pp. 159-172 (3 figs.), C. ENLART discusses two gratings in the Musée de Douai, one of the fourteenth and the other of the fifteenth century.

The Group of the Visitation on the Cathedral at Reims. — On the head of the Virgin of the group of the Visitation at the right of the door of the cathedral of Reims is an inscription formerly read "1394 x OC." It is now seen to be "1739, 4 Oc(tober)." Some repairs were made between 1737 and 1740, which would have given an opportunity to carve the inscription. (E. NEALE, *R. Arch.* XV, 1910, pp. 142-144.)

GERMANY

A French Altar Piece in Berlin. — In *Mon. Piot*, XVI, 1909, pp. 85-94 (pl.; 4 figs.), R. KOECHLIN shows that the marble altar piece recently acquired by the Berlin museum is probably the work of some unknown follower of Jean de Saint-Romain or Jean de Liège and dates from the middle of the fourteenth century.

GREAT BRITAIN

Mediaeval Knockers. — In *Proc. Soc. Ant.* XXII, 1909, pp. 380-389 (8 figs.), M. CHRISTY publishes a latten door knocker from Lindsell, Essex, dating from the twelfth century, and discusses six other specimens which date from the twelfth to the end of the fourteenth century. The author believes that they were really sanctuary rings, not knockers. O. M. DALTON, *ibid.* pp. 389-391, discusses the origin of mediaeval knockers.

A Penny of St. Aethelberht.—In *Proc. Soc. Ant.* XXII, 1909, pp. 432-442 (pl. with 21 figs.), P. W. P. CARLYON-BRITTON publishes a penny of St. Aethelberht, king of East Anglia, found at Tivoli in 1908 and now in his possession. Only one other specimen (in the British Museum) is known. On the obverse is the head of the king to the right surrounded by the letters of his name, and three Runic characters for LUL, probably the name of the moneyer. On the reverse beneath the word REX, in a framework of dots, are the twins beneath the wolf. Aethelberht was killed by Offa, king of Mercia, in 793.

RENAISSANCE ART

GENERAL AND MISCELLANEOUS

Renaissance Architecture in Sweden.—In *Skrifter utgifna af Kungl. Humanistiska Vetenskaps-Samfundet i Uppsala*, XII, 1909, 1-192, ix pp. (82 figs.), A. HAHR discusses under the title 'Arkitektfamiljen Pahr' the important contributions to architecture in Sweden made during the reign of John III (1568-1592). Previous to his time there was no important profane building in the country. The king was familiar with the work of the renaissance in Italy and in the north, and to carry out his great projects of building churches, castles, etc., he called into his service such well-known architects as Willem Boy and Arent de Roy from the Netherlands, and particularly members of the family of Pahr from Italy. The work of Giovanni Baptista (Hans), Kristoffer, Franciscus, and Domenicus Pahr is carefully examined.

The Fountain of Life.—A study of the meaning of the "Fountain of Life" in Christian art is published in *Burl. Mag.* XVII, 1910, pp. 99-109, by EVELYN UNDERHILL. The type appears first as a fountain symbolical of baptism, but was later transformed into a laver containing the blood of Christ. The transition from the old idea to the new may be found in the "Adoration of the Lamb" at Ghent and the "Fountain of Living Water" in the Prado at Madrid. In the first the baptismal water is associated with the "blood of the Lamb" and in the second the water bears upon its surface little Eucharistic wafers. The final stage of the evolution is seen in Hovenbault's "Fountain of Life" in the Béguinage at Ghent, in which the faithful hold out their hearts to receive the blood which flows from Christ in Paradise and is increased by the Virgin and Saints who pour out their own blood into the stream from chalices. The basic idea of such pictures was not Redemption, in the Passion, or the Eucharist, but the dispensation of grace.

Attributions to Petrus Christus.—E. A. DURAND-GREVILLE assigns to Petrus Christus the great triptych of the royal chapel in the cathedral at Grenada, representing The Crucifixion, The Descent from the Cross, and The Resurrection, which was hitherto ascribed to Thierry Bouts or to Onwater. He finds Petrus Christus' hand again in another triptych in the Corpus Christi College at Valencia, an Entombment in the National Gallery, the Madonna in the Prado (No. 2194), and the four Scenes from the Life of Mary in the same gallery (*B. Soc. Ant. Fr.* 1909, pp. 313-316).

ITALY

Pictures in the Accademia Properziana at Assisi.—M. H. BERNATH describes in *Z. Bild. K.* XXI, 1910, pp. 119-123, the pictures in the Acca-

demia Properziana at Assisi. The works of which reproductions are given are: a painted Crucifix from the church of S. Apollinare, which the writer ascribes to Allegretto Nuzi; a fresco from Mora, near Assisi, representing an episode in the life of St. Julian; two half-figures of angels by Matteo da Gualdo; the Madonna from Porta S. Giacomo, by Fiorenzo di Lorenzo, in which Bernath finds evidence of the collaboration of Pinturicchio; two figures of saints by Tiberio d'Assisi; a Crucifixion by Niccolò Alunno, from S. Crispino; and the "Madonna della Misericordia," on a gonfalone likewise from S. Crispino and by the same painter.

Benozzo Gozzoli's Frescoes in Santa Rosa, Viterbo.—Benozzo's frescoes in the church of Santa Rosa at Viterbo, representing the life of that saint, were destroyed in 1642, and are known only by the copies executed in pen and light tempera in that year by Francesco Sabatini. These copies are published in *L'Arte*, XIII, 1910, pp. 36-42, by R. PAPINI, with commentary illustrating the data they furnish in the artistic development of Benozzo.

The Loggia of Sansovino.—In an article in *L'Arte*, XIII, 1910, pp. 108-133, G. LORENZETTI traces the history of the Loggia of Sansovino at Venice from its primitive, inartistic, and temporary form through the construction of Sansovino's building, the addition of the esplanade in the seventeenth century, and the changes wrought by the restoration of the eighteenth century. The original idea of Sansovino is shown by an engraving of Giacomo Franco, the restoration of the seventeenth century by one of Luca Carlevaris. The writer comments on the sculptures of the loggia by Sansovino, and apportions the reliefs among his collaborators: Gerolamo Lombardo, Tiziano Minio, and Danese Cattaneo.

An Unrecognized Palma Vecchio.—DETLEV VON HADELN in *Mh. f. Kunstw.* III, 1910, pp. 110-111, publishes a Flagellation in the gallery at Rovigo, which has been assigned to Giorgione and by Crowe and Cavalcaselle to the school of Bonifazio. Von Hadeln claims it for Palma Vecchio on internal grounds.

An Allegory by Luini.—G. FRIZZONI in *Rass. d'Arte*, X, 1910, pp. 41-44, reconstructs a picture of Luini's, of which only a fragment remains in a private collection at Bergamo, representing a woman's head. The entire picture is seen in a copy of the sixteenth century in the collection of Sig. Talacchini at Milan, in which is seen a nude woman holding in her right hand a pair of wings, in her left a tortoise, and sitting on a pedestal which is inscribed with the motto which the picture is intended to illustrate: *medium tenere beati*. Frizzoni shows also that the Bergamo fragment cannot be ascribed to Giampietrino.

A Picture by Francesco Melzi.—There are but two pictures attributed to Leonardo's favorite pupil in public galleries: the Vertumnus and Pomona at Berlin and the Colombina in the Hermitage. C. J. FROULKES is inclined to assign to him the Leonardesque half-figure of a woman, nude to the waist, in the collection of Sir Kenneth Mackenzie in London (Fig. 5). This is the last of a series of half a dozen replicas of the same subject, probably all copies of a *bottega* piece modelled on the Mona Lisa (*Rass. d'Arte*, X, 1910, pp. 27-29).

The Art of Giovanni Cariani.—In *L'Arte*, XIII, 1910, pp. 177-190, A. FORATTI discusses the works of Giovanni Cariani. He divides his career into three periods: the Palmesque, the Giorgionesque, and the eclectic.



FIGURE 5.—PICTURE BY FRANCESCO MELZI.

The Portrait of Doge Marcello.—The portrait of Doge Marcello in the Pinacoteca Vaticana was assigned to Titian by Crowe and Cavalcaselle, the Cicerone, and Morelli, but given to Cariani by Berenson. DETLEV VON HADELN has discovered evidence in Lotto's *Libro dei Conti* that the portrait was ordered of Lotto by a member of the Marcello family in 1542, and later in the same year the commission was refused. Von Hadeln considers this

a piece of evidence in favor of Titian's authorship, for if the family had decided upon so prominent a painter as Lotto, it is more likely that they would have turned to Titian upon his refusal, than to a second-rate painter like Cariani (*Rep. f. K. XXXIII*, 1910, pp. 101-106).

Attributions to the "Maestro della Pala Sforzesca." — E. JACOBSEN in *Rass. d'Arte*, X, 1910, pp. 53-55, attributes to this unknown painter a Holy Family in the *Seminario* at Venice, variously attributed by others to Leonardo, Marco d'Oggiono, and Boltraffio, and a drawing of a female head in the Galleria Borghese at Rome. He finds traces of the master's style in several other works, notably in the Madonna of the Morrison Collection in Boston, given to Francesco Napoletano by Perkins and Cagnola.

Michele and Pier Ilario Mazzola. — L. TESTI reconstructs the careers and *oeuvre* of Michele and Pier Ilario Mazzola in *Boll. Arte*, IV, 1910, pp. 49-67 and 81-97, his article amounting to an analysis of painting at Parma, and particularly the decoration of the cathedral, during the fifteenth century. He finds that from the decoration of the Baptistery on, foreign painters abounded in Parma, especially beginning with the fifteenth century. The chronological sequence of the cathedral chapels is established as well as the authorship of their frescoes. To the article is appended a chronological résumé of the careers of the various members of the Mazzola family, and a genealogy.

The "Borro" in Berlin. — H. VOSS in *Mh. f. Kunstw.* III, 1910, pp. 18-24, assigns the so-called "Portrait of Alessandro del Borro" in the Kaiser Friedrich Museum to Andrea Sacchi, principally by reason of its resemblance in technique and conception to Sacchi's portrait of Oreste Giustini in the Galleria Borghese at Rome.

A Roman School. — O. OKKONEN in *L'Arte*, XIII, 1910, pp. 51-53, argues that the number of pictures attributed to Antoniazio Romano is much too large, and that certain of them belong to other artists of a number and importance to contribute a real "Roman School" of the fifteenth century. He gives a list of pictures to be ascribed to such a school, and urges the attribution to Antoniazio of the two pictures representing Peter and Paul in the Oratorio del Gonfalone at Rome.

Syracusan Painting of the Quattrocento. — In *Rass. d'Arte*, X, 1910, pp. 23-27, E. MAUCERI publishes a number of Syracusan paintings of the fifteenth century, isolating a number of schools and showing the influence of Antonello da Messina toward the end of the century.

The Authorship of the "Giuochi di Putti." — In a study of the history of the conception and execution of these tapestries which Leo X ordered of Pieter van Aelst, through the medium of Vincidor di Bologna, E. DIEZ arrives at the conclusion that Vosaei is right in assigning the cartoons to Giovanni da Udine. The sole remaining cartoon is now in the possession of Herr Julius Deutsch of Vienna and is of the full size of the tapestry which was to be copied from it. The technique betrays a Flemish hand, and the cartoon was probably done in Flanders after a drawing by Giovanni da Udine, whose style is clearly traceable through the copy. (*Jb. Preuss. Kunsts.* XXXI, 1910, pp. 30-39.)

Bernini's Fountains. — In a discussion of the fountains designed by Bernini, in *Jb. Preuss. Kunsts.* XXXI, 1910, pp. 99-129, H. VOSS arrives at a higher appreciation of the artist's taste than that usually held. He com-

pares Bernini's fountains with those of the early Renaissance, and finds that the former are merely special applications of architecture, and a field wherein the artist indulged his imitation of the antique. The Roman Baroque was the first to seize the artistic possibilities of water, and Bernini was the greatest master in the combining of water and fountain into a consistent whole.

Alabaster Polyptychs. — Alabaster polyptychs exist in Genoa, at the Galleria di Palazzo Bianco, in the parish church at S. Benedetto a Settimo (Pisa), in the Museo Civico at Ferrara, and in the Museo Nazionale at Naples. They all present the characteristics of their class, rude execution, polychromy, etc. The polyptych of S. Benedetto is of somewhat later date than the others, and the one at Naples is the best preserved, showing the original arrangement and manner of framing of these reliefs. Resemblance to English examples makes it possible that the Italian examples are of English origin, alabaster carving having been largely practised in England in the fifteenth and sixteenth centuries. (R. PAPINI, *L'Arte*, XIII, 1910, pp. 202-213.)

The Book of Offices Bound by Benvenuto Cellini. — In *Mél. Arch. Hist.* XXIX, 1909, pp. 329-339, P. FEDELE reviews the previously known descriptions of the Book of Offices (uffiziolo di Madonna), with a binding by Benvenuto Cellini, which was presented to Charles V in 1536 by Pope Paul III, and adds further information derived from the papal expense accounts of 1536. From these it appears that the illuminations of the book were by Vincenzo Raimondi. Of the known bindings attributed to Benvenuto none agrees with his description so well as the one in the ducal museum at Gotha. This still contains a book ornamented with miniatures. Should these prove to be by Raimondi, the identity of the binding with that described by Benvenuto would be established.

SPAIN

Painting in Aragon and Navarre. — A. L. MAYER contributes to *Mh. f. Kunstw.* III, 1910, pp. 190-200, a brief survey of the principal existing productions of this school from the thirteenth to the eighteenth century. Reproductions are given of four Aragonese pictures: a Madonna in the Städelsches Institut at Frankfurt-a-M. (ca. 1420); the Madonna in the collection of D. Mariano de Pano at Saragossa (ca. 1450); a St. John Baptist in the collection of L. Galdeano at Madrid (ca. 1460); and a St. Michael in the same collection (ca. 1460).

Alfonso Cano and his School. — A. L. MAYER contributes to *Jb. Preuss. Kunsts.* XXXI, 1910, pp. 1-29, a life of Alfonso Cano of Grenada, with an appreciation of his principal works both in sculpture and painting, and an account of his influence on the subsequent artists of his city.

FRANCE

A Pietà of Nicolas Froment. — In *Mon. Piot*, XVI, 1909, pp. 147-208 (3 pls.; 31 figs.), C. DE MANDACH publishes a Pietà at Villeneuve-les-Avignon, which he attributes to Nicolas Froment. He also discusses the characteristics of this painter and his connection with the Flemish and Italian Schools.

The "Raphael" of Narbonne.—In *R. Arch.* XV, 1910, p. 299, S. R. gives briefly the history of the much-damaged fresco of the Martyrdom of St. Cecilia, which was originally in the chapel of the Villa Magliana of Leo X and is now in the museum at Narbonne. The design is by Raphael; the execution may be attributed to Spagna.

The Date of the Death of Jehan Perréal.—In *B. Soc. Ant. Fr.* 1909, pp. 370-374, M. ROY publishes two documents which show that the artist, Jehan Perréal, died at Paris in June or July, 1530.

Two Fifteenth-Century Portrait Busts.—In *Le Musée*, VI, 1909, pp. 216-225 (2 pls.), A. SAMBON publishes two busts in the collection of J. Seligman, one of a young woman, supposed to be a portrait of Beatrice of Aragon, attributed to Francesco de Laurana; and the other the portrait of a man, which he attributes to Pietro da Milano. The writer gives a brief sketch of these two fifteenth-century artists. Both busts are interesting pieces of sculpture.

The Boy Removing a Thorn from his Foot.—In *Mon. Piot*, XVI, 1909, pp. 95-97 (pl.), G. MIGEON compares the Renaissance bronze statuette of a boy removing a thorn from his foot, recently acquired by the Louvre from the collection of Lord Lonsdale, with similar statuettes in the possession of Charles Haviland and Gustave Dreyfus.

A New View of the Name "Monvaerni."—Didier Petit's discovery of this "artist's signature" on Limoges enamels has always been regarded with some doubt. In *Burl. Mag.* XVII, 1910, pp. 36-39, H. P. MITCHELL brings evidence to show that it is really a donor's name, and is to be interpreted in its full form: *Monva ep* (not *er*) *Ni*, i.e. *Montbas, episcopus Nazarethi*. Jean Barton de Montbas was bishop of Limoges from 1458 to 1484, in which year he resigned the see and was made archbishop of Nazareth. He is represented as donor on a large Limoges triptych described by Ardant and Labarte. *Ibid.* pp. 123-124, E. BECK presents objections to this view which are answered by the previous writer.

An Illuminated Manuscript of Virgil.—In *B. Soc. Ant. Fr.* 1909, pp. 334-336 (2 figs.), F. DE MÉLY calls attention to a manuscript of Virgil in the library of Dijon (No. 493), containing miniatures which he regards as among the best examples of French art of the fifteenth century. Two names are found on the miniatures, *Peryez* and *W. bourbon*, which have not yet been explained.

Ugo de Vosor or Nabuchodonosor.—In *R. Arch.* XV, 1910, pp. 240-243 (2 figs.), F. DE MÉLY maintains his reading, "Ugo de Vosor," in the manuscript of the "Heures d'Anne de Bretagne." He shows that Nabuchodonosor has nothing to do with the scene in the illustration, that Vosor (Vaulsor, Vator) was a monastery, near which was a convent called Machabeorum, and that the I AB of the inscription stands for J(ean) Ab(ry), abbot of Vaulsor from 1461 to 1489. He also recapitulates briefly his proof (*Gaz. B.-A.* September, 1909) of the existence of artists named Wante.

HOLLAND

An Apostle-Series by Jakob Cornelisz.—CAMPBELL DODGSON, in *Jb. Preuss. Kunsts.* XXXI, 1910, pp. 40-46, establishes the authorship of Jakob Cornelisz for three wood-cuts, one in the Berlin Kupferstichkabinett, representing St. Philip, another in the British Museum, representing St. James

Major, and a third, St. Bartholomew, in the Bodleian at Oxford. The appearance of others of the series may be judged by six copies from the series in the Rijksprentenkabinet at Amsterdam.

The Master of the "Virgo inter Virgines."—In *Jb. Preuss. Kunsts.* XXXI, 1910, pp. 64-72, M. J. FRIEDLÄNDER assembles the *oeuvre* of the master of the "Virgo inter Virgines," and describes his characteristics. The relation with Geertgen he finds to be not so striking as to suggest that the latter was the teacher of the *aumenio*: in fact, he seems to be later in date. His style is traceable in the illustrations of the *Ludolphus, Leben Christi* and in prints of the *Hystorie van die seven wise Mannen*. He evidently flourished toward the end of the fifteenth century, and lived probably at Delft or Gouda.

GERMANY

Fifteenth-Century Signatures.—G. DEHIO in *Rep. f. K.* XXXIII, 1910, pp. 55-64, assembles a series of interesting examples to show how little dependance can be placed on German artists' signatures of the fifteenth century. The signature regularly denotes the impresario, and if the name is that of a sculptor or painter, he inscribes it as that one of the artists engaged in the work with whom the contract was made. This accounts for painters' names appearing on sculpture and vice versa. This rule does not survive the fifteenth century as a general practice.

The Chronology of the Hausbuchmeister.—C. GLASER in *Mh. f. Kunstw.* III, 1910, pp. 145-156, works out a chronological arrangement of the prints of the *Hausbuchmeister*. His artistic activity began ca. 1465-70, and divides itself into early, middle, and later periods, these in turn admitting of subdivision. The early period comprises the years 1465-75, the middle period 1475-88, the late period 1488-1505. A chronological table of the prints is appended to the article.

Hans Dürer in Poland.—I. BETH in *Jb. Preuss. Kunsts.* XXXI, 1910, pp. 79-98, traces the artistic development of this lesser brother of the great Albrecht, showing that his earlier tendency was to be a sort of bridge between his brother and Altdorfer. His "Polish" style is represented by the paintings on the Silow altar in the cathedral at Krakau wherein he betrays the effect of Italian influence.

Simone Martini and the Bamberger Altar.—The Carrying of the Cross on the Bamberger altar in the National Museum at Munich is obviously copied from Simone Martini's painting of the same subject in the Louvre, and a similar relation exists between the Descent from the Cross on the same altar and Simone's Descent from the Cross in Antwerp. Simone was the first to render these two subjects in the dramatic manner and with the peculiar fashion illustrated by these works, which had a wide influence after his time. (H. SEMPER, *Mh. f. Kunstw.* III, 1910, pp. 71-76.)

Drawings in the Frankfurt Museum.—G. FRIZZONI discusses the drawings in the Städelsches Institut at Frankfurt in *L'Arte*, XIII, 1910, pp. 21-34. The most interesting of the drawings treated is one by Annibale Caracci, representing the cortile of the Palazzo Farnese, in the centre of which stands the Farnese Hercules, which was removed to Naples about 1700.

Exspectatio Mariae.—The curious scene on Grünwald's Isenheimer altar in Colmar, which represents the Virgin and a choir of angels kneeling

in adoration of the Nativity represented in the wing to the right is the subject of an article by K. LANGE in *Rep. f. K.* XXXIII, 1910, pp. 120-135. He rejects the previous attempts to explain the picture, and interprets it as an *Exspectatio Mariae*, Mary's Waiting for the Birth of Christ, which forms a conspicuous part of the life of the Virgin in the apocryphal gospels and in late mediaeval poetry, notably the Life of Mary by Philip the Carthusian, and became the occasion of a special festival in the Spanish church, on the 18th of December.

Hans Peisser. — G. HABICH in *Mh. f. Kunstw.* III, 1910, pp. 66-70, gives a brief résumé of the artistic activity of the Nürnberger sculptor Hans Peisser and reproductions of five of his medallions.

The "Flora" Bust. — *Ber. Kunsts*, 1909, pp. 73-82, contains the report of A. MIETHE, who was commissioned to examine the relation of the wax bust of Flora in the Kaiser-Friedrich Museum, claimed as a Leonardo by the Direction, to the photograph of the similar bust which appears in the album of the English artist Lucas, whose son maintains that the bust was made by his father, and cites the photograph in support of his claim. Miethe finds that the Lucas photograph was made from the Berlin bust, and that the drapery appearing in the former was added partly by actual modelling, partly by painting the negative or positive of his photograph. This is shown by the fact that the cracks in the wax show through this drapery in places. The same evidence is cited to show that the bust could not have been manufactured in Lucas' day, as the cracks would not have already appeared. Moreover, the filling which was found in the interior of the bust was evidently put in by Lucas to prevent further cracking. The inscription on Lucas' photograph, "The Flora of Leonardo da Vinci," shows that he considered it an antique. The chemical examination of Dr. RATHGEN (*ibid.* pp. 83-84) produced no important evidence. Investigations in England show that Lucas' work shows no trace of interest in the Italian Renaissance, and no evidence of the ability to conceive and carry through such a subject as the Flora. The wax figures of Lucas which still exist are clearly modern, and have none of the marks of antiquity which characterize the Flora. (Posse, *ibid.* pp. 85-88.) The other side of the controversy is represented by a series of affidavits published in *Berl. Mag.* XVII, 1910, pp. 178-183, tending to show that the bust was made by Lucas. *Rass. d'Arte*, Jan. 1910, pp. v-vi contains a communication by E. DIEZ in favor of the authenticity of the bust. Another defence of the Flora is to be found in an article entitled 'Leonardo da Vinci und die Antike' by FRIDA SCHOTTMÜLLER in *Z. Bild. K.* XXI, 1910, pp. 111-118, in which the classic quality of the bust is urged in its favor because of Leonardo's manifest preoccupation with the antique. *Ibid.* pp. 148-155, appears an article by DETLEV VON HADELN which reviews the controversy and decides against the authenticity of the Flora. *Ibid.* pp. 156-162, A. JOLLES argues that the style of Lucas as shown in his other works is of so modern a character, and so different from that of the bust, as to make his authorship impossible. In *R. Arch.* XIV, 1909, pp. 416-430 (5 figs.), S. REINACH gives a résumé of the controversy.

The Konhofer Window in Nürnberg. — This window in the church of Sankt-Lorenz is usually dated 1452, that date appearing in its inscription. In *Rep. f. K.* XXXIII, 1910, pp. 155-159, J. SCHINNERER shows that this inscription is probably copied from the Latin epitaph on Konhofer's tomb,

and that the window could not have been done in 1452, as the church had not progressed far enough for glazing. The style is of the last decades of the fifteenth century.

AUSTRIA

A Judgment of Paris by Lukas Cranach.—In *Rep. f. K.* XXXIII, 1910, pp. 65–87, R. AMESEDER discusses a Judgment of Paris in the *Landes-galerie* at Graz, which he assigns to Lukas Cranach and dates 1516–1519. It is the prototype of the many similar “school” productions of the same subject. The article amounts to a thorough review of Cranach’s characteristics.

GREAT BRITAIN

A Tudor Painter.—*Burl. Mag.* XVII, 1910, pp. 71–79 and 147–149, contains an article by MARY F. S. HERVEY on Gerlach Flicke. His will recently discovered shows that he was a native of Osnabrück or its neighborhood, but he had removed to England before 1547. In 1554 he was in prison with his friend Strangways, the notorious “Red Rover” of the Channel, for participation in Wyatt’s Rebellion, as we learn from the inscription on a portrait of the painter and Strangways which was sold at Christie’s in 1881 and has since disappeared. Of the ten pictures by him of which we have any knowledge, only four can be traced: the Man with Columbine Flowers, at Newbattle Abbey, Dalkeith, which the writer suggests is a portrait of Lord Gray of Wilton; the portrait of Sir Peter Carew in the same place; the portrait of Cranmer in the National Portrait Gallery; and a portrait of Jacques de Savoie, Duc de Nemours, which is probably the latest known work of the master and was done ca. 1555.

The Sculptured Parapets of Burnham Westgate Church.—In *Proc. Soc. Ant.* XXII, 1909, pp. 498–500 (4 pls.), W. H. ST. JOHN HOPE describes the sculptured parapets of the church at Burnham Westgate, Norfolk. There are four pairs of figures on each side with intermediate shields, but as they are more or less mutilated all the subjects cannot be made out. The sculptures date from the time of Henry VII.

Alabaster Figures from Fordham All Saints Church.—In *Proc. Soc. Ant.* XXII, 1909, pp. 502–503 (pl.), NINA LAYARD publishes two alabaster figures of seated bishops from the church of Fordham All Saints, Suffolk.

AMERICAN ARCHAEOLOGY

GENERAL AND MISCELLANEOUS

Animal Pictures in the Mexican and Maya Manuscripts.—In *Z. Ethn.* XLI, 1909, pp. 209–257, 381–457, 784–846; XLII, 1910, pp. 31–97 (pl.; 894 figs.), E. SELER discusses the animal pictures of the Mexican and Maya manuscripts. The mythological significance of the various animals is emphasized, and their use as signs for the days of the month, the cardinal points of the compass, their identification with the gods of the maize, the darkness, rain, etc., dwelt upon. Much light is cast on the Maya manuscripts, by comparison with the Mexican pictures and hieroglyphs, and Seler often disagrees with W. Stempell’s identifications in his article on the animal pictures in the Maya manuscripts from the point of view of a zoöl-

ogist in *Z. Ethn.* XL, 1908, pp. 704-743 (*A.J.A.* XIII, p. 248). In *Papers of the Peabody Museum of American Archaeology and Ethnology*, Harvard University, IV, pp. 273-372 (39 pls.; 24 figs.), A. M. TOZZER and G. M. ALLEN treat the same subject. A general discussion of the mythological and symbolical bearings is followed by classified descriptions of the representatives. Reptiles, birds, and mammals occupy a large proportion of the consideration.

The Island of Sacrificios, Mexico.—In *Am. Anthr.* N.S. XII, 1910, pp. 237-295 (11 pls.; fig.), ZELIA NUTTALL gives an account of the discovery and history of the island of Sacrificios, near Vera Cruz, Mexico, describing its walls, paintings, and pottery as well as antiquities from the island in the National Museum, Mexico, and in the British Museum.

Human Sacrifice in Central America.—In *C. R. Acad. Insc.* 1910, pp. 109-126 (15 figs.), Dr. CAPITAN discusses human sacrifice in ancient Mexico and Central America, and uses by way of illustration reproductions from the codices.

Ancient Peruvian Weaving.—In *Z. Ethn.* XLII, 1910, pp. 154-164 (10 figs.), MAX SCHMIDT, after discussing differences in the loom and manner of weaving between the geometric and pictorial styles of Pachacamac pre-Inka weaving, concludes that the latter, with its scenes from life, and ornamentation borrowed from plants, was of foreign origin, having been perhaps brought in from Eastern Asia.

The American Race.—In *Am. Anthr.* N.S. XII, 1910, pp. 149-182 (15 figs.), W. H. HOLMES discusses 'Some Problems of the American Race,' arguing that it developed slowly from the earliest occupation of the continent until Columbian times. The dispersal of mankind did not take place until some advance had been made in the arts of humanity, and America was the last of the great land areas to be reached.

The Cliff-Dwellings of Walnut Canyon.—In *Am. Anthr.* N.S. 1910, pp. 237-249 (4 figs.), H. W. and F. H. SHIMER discuss 'The Lithological Section of Walnut Canyon, Arizona, with Relation to the Cliff-dwellings of this and Other Regions of Northwestern Arizona.' Besides descriptions of the dwellings themselves and their contents it is of a certain archaeological interest to note the authors' remarks on erosive climatic influence on the cliffs which contain the dwellings and the resistance of the various zones. The writers point out that these ancient tenement dwellers apparently found the narrow streets before their houses as great a convenience into which to throw waste as did the ancient Romans described by Juvenal; in either case the danger from falling pottery was probably at times very real.

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